# Veterinary Science 11 BAA

**BAA Course Framework**

**District Name:** Abbotsford

**District Number:** 34

**Developed by:** Glenda Dyck

**Date Developed:** March 2017

**School Name:** AVS

**Principal's Name:** Brad Hutchinson

**Board/Authority Approval Date:**

**Board/Authority Signature:**

**Course Name:** Veterinary Science 11

**Grade Level of Course:** 11

**Course Code:** YPLS 11A

**Number of Course Credits: 4**

**Number of Hours of Instruction:** 120

**Prerequisites:** none

**Special Training, Facilities or Equipment Required:**

**Course Synopsis:** Veterinary Science 11 is an introduction into small animal veterinarian practice. It is designed to introduce students to the basic concepts of veterinary science through decision-making, problem solving and career related activities. The curriculum has a strong base in science and career education. This course will focus on small animals with the idea that a future course called Veterinary Science 12 will focus on large animals. This course has been developed for the online/blended learning environment. Instructional strategies are suggestions only and are not limited to only the strategies listed here.

**Rationale:**

In 2014, fifty-seven percent of Canadian Households own pets which equates to 7.5 million households. Thirty-seven percent of Canadian households owned one or more

cats, 32% owned dogs. Overall Canada is home to roughly 5.9 million dogs and 7.9 million cats. Nine percent of Canadians owned other types of pets, including fish, birds, small mammals and reptiles. (2014,http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sis14914)

Given the high rates of pet ownership in Canada, veterinarians are a needed occupation. Veterinarians are in high demand in BC according to the 2016-2018 government job outlook data and the Fraser Valley is home to a variety of agricultural farms. In Abbotsford alone, there are more than 14 veterinary hospitals and practices.

Currently, other than basic biology courses, there is no course dedicated to veterinary science available to students who wish to learn more about this area of science. This course creates an opportunity for students to explore topics relevant to them that can be applied to future education.

**Organizational Structure:**

| Unit | Title | Time |
|---|---|---|
| Unit 1 | Introduction to Veterinary Science | 15 hours |
| Unit 2 | Safety | 10 hours |
| Unit 3 | Anatomy & Physiology | 15 hours |
| Unit 4 | Clinical Exams | 15 hours |
| Unit 5 | Parasitology | 20 hours |
| Unit 6 | Principles of Disease | 15 hours |
| Unit 7 | Animal Nutrition | 15 hours |
| Unit 8 | Animal Management | 15 hours |
| | **Total hours** | **120** |

**Formative Assessment:**

Formative assessment will occur through practice quizzes/assignments/interactive online games/quizlet as well as self-reflection blogs. Communication with student to guide research can also be used as formative assessment.

**Summative Assessment:**

| ***Unit*** | ***Title*** | ***Percentage of Final Mark*** |
|---|---|---|
| **Unit 1** | **Introductions to Veterinary Science** | **5.0** |
| **Unit 2** | **Safety** | **5.0** |
| **Unit 3** | **Anatomy & Physiology** | **10.0** |

| | | |
|---|---|---|
| **Unit 4** | **How to conduct a Clinical Exam** | **10.0** |
| | **Midterm assessment**<br>**written/practical**<br>● ***options - lab, case studies, written or video scenarios, data analysis, portfolio checkpoint, student reflection, job shadow, inquiry based project*** | **10** |
| **Unit 5** | **Parasitology** | **10.0** |
| **Unit 6** | **Principles of Disease** | **5.0** |
| **Unit 7** | **Animal Nutrition** | **5.0** |
| **Unit 8** | **Animal Management** | **5.0** |
| | **Final assessment**<br>**Final Reflection**<br>● ***Students will write a final reflection on their blog. They will reflect on their learning and how it has changed throughout the course by utilizing examples from their portfolio as evidence.***<br>**Portfolio**<br>**presentation**<br>● ***each student will present their portfolio to the class, this can be done in person or through online communication. Video/Audio tour could be used as an alternative.***<br>**Information**<br>● ***each student will submit their portfolio with their collection of evidence showcasing their learning from throughout the course.***<br>***Options - capstone, inquiry-based project*** | **10**<br><br>**5**<br><br>**15** |
| | **Total Percentage** | **100** |

***Note 1 - this assessment structure is in place for the online environment and other classroom teachers may wish to adjust the weighting of each of the units and assessments as they see fit.***

**Unit/Topic/Module Descriptions:**

**Unit 1: Introduction to Veterinary Science Time: 10 Hours**
This unit will introduce students to the various careers available in the veterinary sciences. It will also focus on terminology used in veterinary science. Terminology covered will include the prefixes, suffixes and roots that have Greek and Latin origins.

**Curriculum Organizers and Learning Outcomes:**

It is expected that students will:

- Locate and select from the various careers found within veterinarian medicine and describe the prerequisites required to be accepted into the program of interest.
- Name many common Greek and Latin prefixes, suffixes, and roots that compose the language of veterinary medicine and apply this knowledge to dissect veterinary terms to discover their meanings.

**Instructional Strategies for the unit:**

- Direct instruction through – 1. videos outlining different career options
  2. images showing branches of veterinarian care.
  3. notes describing the responsibilities of the various fields in veterinarian science.
- Interactive instruction through – quizlet where students can gain a better understanding of the terminology
- Analysis Activity of medical root words, prefixes and suffixes.
- Student reflection- in a blog entry to answer the following question - “Now that you have had a chance to explore several Veterinary careers, what area interests you the most and why? Which areas will you delve deeper into for the research project?"
- Practical Application – 1. wordplay activity where students will compose scientific words utilizing the Latin and Greek prefixes, suffixes and roots.
  2. Research project (career search) where students will be required to examine two careers in veterinary science and list the job specs as well as the education required. Final project will be posted to their website.

**Summative Assessment Strategies for the unit:**

- Rubric - Research Project with criteria
- Terminology Activity – students must use the prefixes, suffixes and roots learned to create 5 unique words and provide their definitions
- Unit quiz - on medical terminology, prefixes, suffixes and roots
- Research project- on two careers

**Unit 2: Safety** **Time: 10 Hours**

Safety hazards come in many forms when working with animals in the medical setting. This unit will focus on the hazards veterinarians face as well as how to minimize exposure to those hazards.

**Curriculum Organizers and Learning Outcomes:**
It is expected that students will:

- Identify the types of hazards common in the veterinary hospital and the organization that regulates safety standards in the workplace.
- Read and comprehend an MSDS (Materials System Data Sheet) and locate important safety information within it.
- Understand online WHMIS information and obtain online certification upon completion of the information.
- Identify and describe various zoonotic diseases that are found in veterinary science and in your community.
- Compare and contrast sanitation, disinfection, and sterilization methods, and analyze which cleaning method should be used in any given situation.

**Instructional Strategies for the unit:**

- Direct instruction through – 1. videos - online WHMIS certification, zoonotic diseases in pets & wildlife
  2. images - types of hazards, methods of sanitation, zoonotic disease prevention
  3. notes defining MSDS and WHMIS, types of hazards including physical, chemical, biological and zoonotic.
- Analysis of an MSDS sheet, one provided and one obtained through school, workplace or online
- Participate in an online WHMIS course and obtain certificate upon successful completion. (Note that employees may or may not accept online training but useful for the purposes of this course).
- Student Reflection - write a blog reflecting on what you learned this unit. What stood out as something you did not know or would like to know more about? Had you ever heard of zoonotic disease, have you or someone you known contracted a zoonotic disease?
- Practical Application - 1. explore zoonotic diseases specific to the student's community (communicate with local vet for information) and assemble an informative presentation to be posted on the website.
  2. Analyze scenarios and choose the correct method of protection (done through an online quiz).

**Assessment Strategies for the unit:**

- Direct Marking - MSDS worksheet
- Rubric - Zoonotic Diseases
- Unit quiz - scenarios and methods of protection

**Unit 3: Anatomy & Physiology** **Time: 20 Hours**

Anatomy and Physiology are the foundations on which veterinary medicine is built. This unit will focus on the skeletal and muscular systems of the dog and cat as well has some injuries associated with these systems.

**Curriculum Organizers and Learning Outcomes:**

It is expected that students will:

- Distinguish between the skeletal system and muscular systems of the cat and dog and explain how each system functions, its purpose, and how it is affected by disease or injury.
- Locate anatomical the anatomical structures of animals
- Understand and apply correct directional anatomical terms when describing location on an animal
- Describe the main components of the respiratory and nervous systems of small animals and explain their functions
- Research and comprehend the different types of respiratory or nervous system diseases that impact small animals

**Instructional Strategies for the unit:**

- Direct instructions through – 1. videos - dog's anatomy, dog's skeleton 2. images - anatomical direction, skeleton of dog and cat, bone anatomy and fractures, types of muscles & movement, major muscles of a dog 3. notes
- Interactive instruction through – quizlet, online games (dog, cat)
- Analysis - quiz on anatomy & physiology
- Hands-on Activity - 1. students will utilize gummy bears to demonstrate their understanding of anatomical terms.
  2. Model (poster, 3D model or live animal model) - skeleton recreation
- Practical Application - project delving deeper into either a respiratory disease or nervous system disease. Final project posted to student website
- Student Reflection - reflect on what was learned this unit. What ways did you learn best? What area intrigued you the most in this unit? Was there a topic you would have liked to learn more about? Or talk about a personal experience relating to the anatomy and/or physiology of an animal.

**Assessment Strategies for the unit:**

- Direct Marking - Gummy Bear Activity
- Rubric - Skeleton Recreation Project
- Rubric - Physiology presentation
- Unit quiz - On the anatomy & physiology of the dog and cat

**Unit 4: How to Conduct a Clinical Exam** **Time: 15 Hours**

A physical exam is an important part of assessing and maintaining good animal health. This unit will focus on how to correctly assess temperature, pulse and respiration and be able to compare that to the normal baseline for household animals.

**Curriculum Organizers and Learning Outcomes:**

It is expected that students will:

- Describe the characteristics of a healthy animal
- Describe the signs and methods used to assess an unhealthy animal including evaluation of various regions of the body.
- Demonstrate the methods used to assess an animal's health including temperature, pulse and respiration (TPR).

**Instructional Strategies for The Unit:**

- Direct instructions through – 1. videos - temperature of cat, Pulse of a dog, vital signs, physical exam, CRT (capillary refill test), restraints (lateral). 2. images - average TPR for common small animals, equipment needed for clinical exam 3. notes
- Interactive instruction through – quizlet, data charts
- Application - TPR Lab - this lab will require the students to find the TPR for several animals and compare the data to the normal range for a healthy animal. Lab write-up required. Students will compare temperature, pulse and respiration (TPR) of a healthy animal to that of an unhealthy animal. Students will also evaluate various regions of an animal's body and recognize the signs of illness that may be present in those areas
- Role-play - students find a partner to practice taking patient's history
- Analysis - quiz
- Student Reflection - write a blog about your experience taking TPR on a live animal. What challenges did you face? Was it easier or harder than expected?

**Assessment Strategies for The Unit:**

- Rubrics - Lab
- Role-play Worksheet
- Unit Quiz - on healthy animals, physical exams and TPR (temperature, pulse & respiration)

**Unit 5: Parasitology** **Time: 20 Hours**

Parasitology is the study of parasites. It is one of the most common practices in veterinary medicine today. The diagnosis of parasites is usually the responsibility of the veterinary technician who must identify infections and dispense medication. Every animal, including humans, is susceptible to parasite infections. This unit will explore the different types of parasitic infections and their impacts on animals.

**Curriculum Organizers and Learning Outcomes:**

It is expected that students will:

- Describe the general clinical signs of an animal with a parasite infestation.
- Understand the various life cycle stages of the both internal and external parasites (including fleas, ticks, heartworms, lice)
- Explain what heartworms are and their impacts on animals
- Identify and compare adult parasites and parasitic eggs
- Discuss all aspects of Lyme disease and understand why it is necessary to protect pets and humans from exposure to ticks

**Instructional Strategies for The Unit:**

- Direct instructions through – 1. videos - what are parasites, FIE in cats, Tick toxins in dogs, floatation fecal sample, heartworm, 2. images - life cycles of all parasites (roundworm, tapeworm, protozoa, heartworm, flea, lice, mites, tick), 3. notes
- Interactive instruction through - quizlet
- Application - research and produce an educational presentation on Lyme Disease.
- Analysis - quiz
- Student Reflection - What did you know about parasites before? Have you or your animals ever had a parasite infection, tell your story. Also include a video explaining how a specific parasite affects an animal

**Assessment Strategies for The Unit:**

- Rubrics - Lyme Disease Awareness
- Unit Quiz - on internal and external parasites and symptoms to look for in animals.

**Unit 6: Principles of Disease** **Time: 15 Hours**

This unit looks at some of the fundamental principles behind the spread of disease by exploring four diseases (pancreatitis, diabetes, leptospirosis, cancer) that represent common categories of disease. Therapeutics and prevention are also examined.

**Curriculum Organizers and Learning Outcomes:**

It is expected that students will:

- List the factors that influence health and wellness in animals. (eg. environmental, stress factors, etc.)
- Discuss the factors that may cause disease in animals. (eg. genetics, environment, etc.)
- Describe the signs of disease in animals.
- Explain how different diseases work and affect the body and the methods used to treat those diseases in animals.
- Research and describe alternative therapies and how they can be used to

enhance veterinary medicine

**Instructional Strategies for The Unit:**

- Direct instructions through – 1. videos - pancreatitis in dogs, diabetes 2. images - healthy vs unhealthy pancreas, human infection of leptospirosis, general warning signs of cancer in pets 3. notes
- Interactive instruction through - quizlet, case study (mange)
- Application - Analyze data from a mock activity showing the transmission of diseases through bodily fluid.
- Application - Graph and analyze data from an animal with diabetes.
- Application - research an alternative therapy and create an educational presentation
- Analysis - quiz
- Student Reflection - What are the pros and cons of alternative therapy? Would you consider using alternative therapy on your pet? Explain why or why not?

**Assessment Strategies for The Unit:**

- Direct marking - mock activity and data analysis worksheets
- Rubric - alternative therapy presentation
- Unit quiz - on types of disease, signs and symptoms

**Unit 7: Animal Nutrition** **Time: 20 Hours**

This unit covers the various types of digestive systems, the digestive process and major nutrients. It also focuses on animal feed marketing, factors that influence how owners feed their animals and how to choose the right food.

**Curriculum Organizers and Learning Outcomes:**

It is expected that students will:

- Evaluate various food labels to determine the nutrient components and their quality.
- Define nutrition and explain its importance in maintaining animal health.
- Know and explain the six basic nutrients and their function in maintaining healthy animals.
- Define the terms digestion, absorption, and metabolism and describe the processes.
- Compare the differences between ruminant and non-ruminant digestive systems.
- Calculate an animal's energy requirements based on its use and stage of life.
- Analyze various feed and calculate the dry matter
- Design and conduct a palatability study to identify animal preferences in foods.

**Instructional Strategies for The Unit:**

- Direct instructions through – 1. videos (peristalsis, Dr.Patton, basic nutrition part 1A and part 1B, part 2, part 3 and part 4 - 2. images (non-ruminant, cecal fermenter, poultry digestive tract, feed labels, protein recommendations for cats and dogs) - 3. notes
- Interactive instruction through - quizlet
- Analysis - analyze food labels to determine protein content from dry matter % as well as how much feed is required to support a shelter/reserve and how to compare the economical value of feed.
- Application - Palatability Lab - which food is preferred by your animal?
- Analysis - quiz
- Student Reflection - What have you learned about nutrition? What did you learn about your animal's food preference? How can this understanding be applied to the veterinary practice?

**Assessment Strategies for The Unit:**

- Direct marking - Feed analysis
- Rubric - Palatability Lab
- Unit quiz - on types of disease, signs and symptoms

**Unit 8: Animal Management** **Time: 15 Hours**

This unit covers basic breed identification, behavior and communication, and basic training theories.

**Curriculum Organizers and Learning Outcomes:**

It is expected that students will:

- Identify common breeds of small animals on sight.
- Demonstrate various methods of behaviour modification that can be used on small animals.
- Describe the most common types of behaviours displayed by various cat and dog breeds.

**Instructional Strategies for The Unit:**

- Direct instructions through – 1. videos - 2. images (common dog, cat, rodent and rabbit breeds, dog/cat communication visuals) - 3. notes
- Interactive instruction through - quizlet,
- Application - research one of the breeds listed in the notes and create an informative poster for the public about history, characteristics and needs.
- Application/Analysis - Observe the behaviour of at least two animals and then compare and analyze the data and write a formal lab report.
- Application - behaviour case studies, students will be given four animal case studies, analyze the behaviour and suggest ways of removing the unwanted behaviour through modification

**Assessment Strategies for The Unit:**

- Rubric - breed identification poster, animal observation lab
- Direct marking - Case Studies
- Unit Quiz - breed identification, visual communication

**Learning Resources:**

**Course Resource** -www.quizlet.com

**Unit 1 Resources**
Videos - 1. https://youtu.be/TdK0T22HMsg
Websites -
http://s2.abbyvirtual.com/draftfile.php/872/user/draft/550789756/movie.swf

**Unit 2 Resources**
Videos - 1. https://youtu.be/zvltyMMjCf0
2. https://youtu.be/iHDwLekyPm4
Websites - http://aixsafety.com/wp-content/uploads/2011/11/IntroWHMISaix.htm

**Unit 3 Resources**
Videos - 1. https://youtu.be/LUSYyw_f64o
2. https://youtu.be/Pjq1nJdnld4
3. https://youtu.be/hc1YtXc_84A
4. https://youtu.be/uAlKNVw-Wwo
5. https://youtu.be/lr5dDmTASos
6. https://youtu.be/6qS83wD29PY
7. https://youtu.be/QxlcXydPXdw

Websites - 1. http://www.purposegames.com/game/veterinary-dog-skeleton-game
2. http://www.purposegames.com/game/aae649e9d2
3. http://www.merckvetmanual.com/
4. http://www.abbey-vetgroup.co.uk/

**Unit 4 Resources**
Videos - 1. https://youtu.be/nb9l9Fak01E
2. https://youtu.be/ruWTE9eWhYY
3. https://youtu.be/Lv63ZUTp_IM
4. https://youtu.be/tMkixasElN4
5. https://youtu.be/rrKY6jd8YbM
6. https://youtu.be/7pYv9_hqqZo
7. https://youtu.be/uq5n2qHn2x4

**Unit 5 Resources**
Videos - 1. https://youtu.be/4j6jikayKZA
2. https://youtu.be/Pe7v-xjiPww
3. https://youtu.be/yPQziaS-pFo

Website - 1.
https://www.avma.org/KB/K12/Pages/animal-hospital-video-game.aspx?utm_source=prettyurl&utm_campaign=mktg&utm_term=videogame

**Unit 6 Resources**
Websites - 1. http://www.petmd.com/dog/conditions/endocrine/c_multi_pancreatitis
2. http://www.petmd.com/cat/emergency/common-emergencies/e_ct_diabetes

**Unit 7 Resources**
Videos - 1. https://youtu.be/o18UycWRsaA
2. https://youtu.be/o18UycWRsaA
3. https://youtu.be/1UQXZYf-b38
3. https://youtu.be/eeU6Ofc1hzw
4. https://youtu.be/d4CxHW8kkuc
5. https://youtu.be/NmDdX7IegDM

Websites -http://www.peteducation.com/article.cfm?c=1+1399&aid=701

**Unit 8 Resources**
Websites - 1.
http://www.pellissippiveterinaryhospital.com/cat-communication-101-part-2/
2. http://www.dogfoodinsider.com/negative-reinforcement-dog-training/
3. http://www.petful.com/behaviors/negative-punishment-to-correct-dog/
4. http://www.dog-training-excellence.com/extinction.html

## Website Presentation Rubric-Final Portfolio Submission

| Score | 4 (exceeds) | 3 (meets) | 2 (approaching) | 1 (below) |
|---|---|---|---|---|
| **Language/ Style** | - Contains few, if any errors (including grammar, punctuation, capitalization & spelling)<br>- These errors do not | - Contains some errors (including grammar, punctuation, capitalization & spelling)<br>- These errors do | - Contains several errors (including grammar, punctuation, capitalization & spelling)<br>- These errors may interfere with the | - Contains serious errors (including grammar, punctuation, capitalization & spelling)<br>- These errors interfere with the viewer's understanding or presentation |

| | | | | |
|---|---|---|---|---|
| | interfere with the viewer's understanding or presentation | not interfere with the viewer's understanding or presentation | viewer's understanding or presentation | |
| **Purpose** | - Masterfully addresses all parts of the presentation goals<br>- Demonstrates a clear understanding of the purpose and audience<br>- Exhibits well developed ideas<br>- Demonstrates exceptional insight | - Adequately addresses all parts of the presentation goals<br>- Demonstrates a general understanding of the purpose and audience<br>- Develops ideas fully but with limited depth | - Addresses only parts of the presentation goals<br>- Demonstrates limited understanding of the purpose and audience<br>- Limited development of ideas and little evidence of in-depth knowledge of topics. | - Minimally addresses the presentation goals<br>- Demonstrates limited understanding of the purpose and audience<br>- Limited development of ideas and little evidence of in-depth knowledge of topics. |
| **Organization** | - Maintains a consistent point view, focus and organizational structure including effective use of transitions and lead-ins<br>- Pacing is natural | - Maintains a mostly consistent point view, focus and organizational structure including effective use of some transitions and lead-ins<br>- Pacing is adequate | - Maintains an inconsistent point view, focus and organizational structure which may include ineffective or awkward transitions and/or lead-ins that do not unify the important ideas<br>- Pacing is awkward | - Lacks a point of view, focus, organizational structure, transitions and lead-ins that unify the important ideas<br>- Pacing is inadequate |
| **Content** | - All topic areas are included and fully developed<br>- Main topics are accurate<br>- Presenter has a comprehensive understanding of topics | - All topic areas are included and mostly developed<br>- Main topics are mostly accurate but inaccuracies do not interfere with understanding<br>- Presenter has an adequate understanding of topics | - All topic areas are included but underdeveloped<br>- Main topics are mostly accurate but inaccuracies interfere with understanding<br>- Presenter lacks understanding of some topics | - Some areas are not included and others are underdeveloped<br>- Main topics inaccurate which interferes with understanding<br>- Presenter lacks understanding of most topics |