Program Learning Outcomes and Competency Alignment

Definitions

- Program Learning Outcomes (PLO): Broad skills and knowledge that students are expected to achieve upon completion of the program.
- Clinical Competencies (CC): Skills, behaviors, and professional abilities demonstrated independently in real-world veterinary clinical settings, reflecting day-one readiness.
- Sub Clinical Competencies or Species/System Clinical Competency (SCC): Specific clinical competencies applied in simulated or instructional settings that contribute to the mastery of CC.
- Pre-Clinical Competencies (PCC): Foundational skills and knowledge applied in simulated or instructional settings that contribute to the mastery of SCC.

Naming Conventions:

- **PLO**: PLO# (e.g. **PLO1** indicates it is the first PLO)
- **CC**: PLO#.CC# (e.g.: **CC1.1** indicates first CC aligned to PLO1)
- **SCC**: PLO#.CC#.SCC# (e.g.: **SCC1.2.1** indicates the first SCC aligned to CC1.2 under PLO1)
- **PCC**: PLO#.CC#.PCC letter (e.g., **PCC1.2a** indicates the first PCC (designated by letter ‘a’) aligned to CC1.2 under PLO 1)

USU DVM Program Learning Outcomes (PLO)



1. Gather history, handle or restrain an animal, perform an examination, and create a prioritized differential diagnosis list. (handle and restrain animals)



2. Develop a diagnostic plan, conduct diagnostic procedures, and interpret results.



3. Develop and implement a management/treatment plan (including pain management, emergency, and intensive care management).



4. Recognize a patient requiring urgent or emergent care and initiate evaluation and management.



5. Formulate relevant questions, critically analyze new information, and retrieve reliable evidence to advance care



6. Perform a common skill, procedure, or surgical procedure including pre-operative and post-operative management.



7. Perform local and general anesthesia and recovery including monitoring and support.



8. Formulate recommendations for preventive healthcare (animal health and well-being promotion, disease prevention, biosecurity, zoonoses, food safety and environmental health).



9. Communicate and collaborate effectively.



10. Demonstrate practice management and leadership skills.



11. Demonstrate a strong professional identity and behaviors expected of a veterinarian.

PLO 1: Gather history, handle or restrain an animal, perform an examination, and create a prioritized differential diagnosis list (handle and restrain animals).

Clinical Competencies	Pre-Clinical Competencies
• CC1.1 - Gather history.	• PCC1.1.a - Define signalment and obtain a comprehensive history for common domestic species.

• CC1.2 - Perform physical exam.
  ○ SCC1.2.1 - Restrain an animal appropriately for a physical exam.
  ○ SCC1.2.2 - Perform a physical exam and interpret clinical findings.
	• PCC1.2.a - Identify and describe normal anatomical structures of major domestic species
	• PCC1.2.b - Locate key anatomical landmarks relevant to physical exams.
	• PCC1.2.c - Complete a systematic physical examination of all body systems, distinguishing normal and abnormal findings using knowledge of anatomy and physiology.
	• PCC1.2.d - Differentiate normal from abnormal physical exam parameters.

• CC1.3 - Develop differential diagnosis.
  ○ SCC1.3.1 - Recognize the common history, clinical signs, and disease course of the most common diseases in domestic and zoological animals.
  ○ SCC1.3.2 - Develop differentials for the common clinical signs of the common diseases in domestic and zoological animals.
	• PCC1.3.a - Recognize anatomical variations that may affect disease presentation.
	• PCC1.3.b - Assess physiological parameters (heart rate, respiration, temperature).
	• PCC1.3.c - Describe homeostasis and physiological responses to stress.
	• PCC1.3.d - Explain how physiological dysfunctions contribute to disease.
	• PCC1.3.e - Develop a problem list using appropriate medical terminology based on signalment, history, lab data, and physical exam.
	• PCC1.3.f - Correlate tissue structure with function in normal and diseased states.
	• PCC1.3. g - Identify pathogens relevant to veterinary medicine.
	• PCC1.3.h - Describe the role of immune responses in disease.
	• PCC1.3. i – Describe the etiology and pathophysiology of common diseases.

○ SCC1.3.3 – Prioritize differentials by comparing key features of a disease with available patient data.	• PCC1.3. j - Recognize gross and microscopic pathological changes in different diseases.

PLO 2: Develop a diagnostic plan, conduct diagnostic procedures, and interpret results.

Clinical Competencies	Pre-Clinical Competencies
• CC2.4 - Prioritize and perform (or order) appropriate diagnostics. ○ SCC2.4.1 – Identify signs of disease and localize the problem.	• PCC2.4.a - Identify the main causes of disease in animals.

• CC2.5 - Interpret laboratory diagnostic results. (not imaging)
  ○ SCC2.5.1 - Interpret clinical and laboratory data.
  ○ SCC2.5.2 - Correlate laboratory findings with signalment, history, and physical exam findings.
	• PCC2.5.a - Perform and/or interpret laboratory diagnostic tests (e.g., PCR, ELISA, serology, SNAP test).
	• PCC2.5.b - Recognize the recommendations and limitations of laboratory diagnostic tests.

• CC2.6 - Interpret diagnostic imaging results.	• PCC2.6.a - Perform and/or interpret imaging diagnostics. • PCC2.6.b - Recognize the recommendations and limitations of imaging diagnostic tests.
• CC2.7 - Perform a complete necropsy, appropriately collect and submit samples for histopathology.	• PCC2.7.a - Identify organs and tissues during dissection. • PCC2.7.b - Demonstrate knowledge of normal physiological functions to recognize pathological changes. • PCC2.7.c - Explain basic principles of disease processes (e.g., inflammation, necrosis). • PCC2.7.d - Recognize gross and microscopic lesions.

	• PCC2.7.e - Identify infectious agents and their pathological manifestations. • PCC2.7.f - Differentiate normal from abnormal tissue architecture to characterize abnormalities. • PCC2.7.g - Demonstrate proper tissue collection technique, labeling, preservation (e.g., formalin fixation), and submission protocols. • PCC2.7.h - Demonstrate knowledge of personal protective equipment (PPE) and safe handling of potentially infectious materials. • PCC2.7.i - Develop differential diagnoses list based on gross findings.

• CC2.8 - Update the differential diagnosis list as new information develops.
  ○ SCC2.8.1 - Develop additional differentials based on diagnostic results
  ○ SCC2.8.2 - Refine differential diagnosis list based on response to treatment and diagnostic results.
	• PCC2.8. a – Integrate the information from the progression of the case, along with laboratory and imaging results, to refine the problem list and differentials.

PLO 3: Develop and implement a management/treatment plan (including pain management, emergency and intensive care management).

Clinical Competencies	Pre-Clinical Competencies
• CC3.9 - Appraise available clinical information and act accordingly despite potential uncertainty.	•
• C3.10 - Prioritize management/treatment plans based on contextual factors and available evidence. ○ SCC3.10.1 - Prescribe and perform treatments.	• PCC3.10.a - Describe drug classifications, their mechanisms of action, and appropriate clinical indications. • PCC3.10.b - Explain antimicrobial mechanisms and resistance patterns. • PCC3.10.c - Select appropriate drugs based on disease, species, pharmacokinetics, and pharmacodynamics. • PCC3.10.d - Calculate drug dosages based on patient species, age, weight, and comorbidities. • PCC3.10. e - Select appropriate antimicrobial therapies based on culture and susceptibility results. • PCC3.10. f - Apply principles of microbiology and immunology to wound management and infectious disease control. • PCC3.10. g - Use knowledge of drug indications and contraindications to predict drug responses based on physiological conditions. • PCC3.10. h – Identify signs of drug resistance and adjust therapeutic approaches accordingly. • PCC3.10. j - Evaluate the indications, contraindications and potential side effects of medications. • PCC3.10. k - Describe the mechanism of action of antibiotics.

	• PCC3.10. l. - Describe the role of immune responses in disease. • PCC3.10.m – Describe the etiology and pathophysiology of common diseases. • PCC3.10. n -- Recognize gross and microscopic pathological changes in different diseases.
• CC3.11 - Evaluate results of treatment/management plan and adjust as needed.	

PLO 4: Recognize a patient requiring urgent or emergent care and initiate evaluation and management.

Clinical Competencies	Pre-Clinical Competencies

• CC4.12 - Triage cases to address most urgent and important problems first.
  ○ SCC4.12.1 - Prioritize patients based on their urgency.
  ○ SCC4.12.2 - Identify clinical signs that require immediate attention and recognize the potential for rapid deterioration in a patient's condition.
  ○ SCC4.12.3 - Recognize life-threatening conditions (e.g., sepsis, endotoxemia, shock, viral epidemics).
	• PCC4.12.a – Identify the chief complaint and potential life-threatening conditions through targeted history-taking.
	• PCC4.12.b - Gather patient history with attention to the chief complaint and potential life-threatening conditions.
	• PCC4.12.c - Practice essential physical examination techniques, such as vital sign measurement, general observation, and quick assessments of relevant body systems.

• CC4.13 - Recognize emergent situations and direct actions.
  ○ SCC4.13.1 - Administer fluids, vasopressors, and emergency medications correctly.
  ○ SCC4.13.2 - Recognize and treat adverse drug reactions and toxicities.
	• PCC4.13.a - Interpret common lab results within the context of a patient's presentation and explain their significance.
	• PCC4.13.b - Implement rapid diagnostic testing for critical diseases.
	• PCC4.13.c -Describe the use of emergency drugs (e.g., epinephrine, atropine, dopamine, fluids, vasopressors).
	• PCC4.13. d - Provide initial response to common emergencies like wounds, fractures, and respiratory distress.

○ SCC4.13.3 - Describe the basic principles of life support, airway management, and other emergency procedures.	
• CC4.14 - Recognize limitations, seek consultation, or offer specialty care where appropriate.	• PCC4.14.a – Identify personal limitations in knowledge and skills. • PCC4.14.b - Determine when to seek consultation from more experienced providers or escalate patient care to higher level based on clinical judgment.

PLO 5: Formulate relevant questions, critically analyze new information and retrieve reliable evidence to advance care.

Clinical Competencies	Pre-Clinical Competencies
• CC5.15 - Use critical thinking to determine appropriate action when unexpected outcomes occur (e.g., complications, changed diagnosis).	• PCC5.15. a - Integrate knowledge of physiology, pathology, pharmacology, and anatomy to predict responses to disease and treatment. • PCC5.15. b - Analyze simulated patient cases in pre-clinical settings, predicting potential outcomes, and justifying diagnostic and therapeutic approaches. • PCC5.15.c – Apply clinical reasoning and decision-making skills to manage unexpected scenarios in a simulated environment.
• CC5.16 - Adjust existing protocol or procedure when standard measures are unavailable or based on agreed upon spectrum of care.	• PCC5.16. a - Explore various approaches to treatment and understand that different treatment options may be appropriate depending on the situation and client goals. • PCC5.16. b - Evaluate and compare the advantages and limitations of available resources (e.g., diagnostic equipment, medications) in a variety of simulated clinical contexts. • PCC5.16.c - Evaluate emerging infectious disease research and clinical trials using a critical approach.
• CC5.17 - Extrapolate knowledge to novel species or situations.	• PCC5.17. a – Evaluate treatment options based on clinical context or situation and client goals. • PCC5.17.b - Compare various treatment approaches based on clinical context or situation and client goals. • PCC5.17.c - Explain how treatment choices may vary based on clinical context and client goals.

	• PCC5.17. d – After searching available literature, compare species-specific anatomical and physiological features to predict responses to disease and treatment. • PCC5.17. e - Search available literature to ensure that extrapolating knowledge to novel species or situations is safe and/or effective. • PCC5.17. f – Describe how basic disease processes vary across species with varying presentations of the same disease. • PCC5.17. g - Evaluate drug and vaccine efficacy and safety based on clinical research. • PCC5.17.h - Apply pharmacological principles to novel or off-label drug use.
• CC5.18 - Apply literature to solve clinical problems.	• PCC5.18. a – Use veterinary databases to search, evaluate, and apply scientific evidence relevant to a clinical case. • PCC5.18. b – Apply basic principles of evidence-based veterinary medicine, including how to evaluate the quality and relevance of research studies. • PCC5.18.c - Evaluate research papers relevant to basic science and pre-clinical topics. • PCC5.18. d - Use scientific literature to support decision-making in simulated case analysis and treatment planning.

PLO 6: Perform a common skill, procedure, or surgical procedure including pre-operative and post-operative management.

Clinical Competencies	Pre-Clinical Competencies
• CC6.19 - Perform elective procedures (e.g., castration).	

• CC6.20 - Perform routine therapeutic procedures (e.g., administer fluids).
  ○ SCC6.20.1- Select and administer appropriate antimicrobials for surgical prophylaxis.
  ○ SCC6.20.2 Apply anatomical knowledge for effective incisions, suturing, and wound healing.
	• PCC6.20. a - Use aseptic techniques.
	• PCC6.20. b - Locate key anatomical landmarks relevant to common procedures and emergency procedures.

• CC6.21 - Perform comprehensive oral health assessments and treatments.	
• CC6.22 - Perform emergency procedures (e.g., CPR).	

PLO 7: Perform local and general anesthesia and recovery including monitoring and support.

Clinical Competencies	Pre-Clinical Competencies
• CC7.23 - Provide analgesia and postoperative care.	• PCC7.23. a - Mitigate risks associated with analgesia and post-op recovery. • PCC7.23. b - Identify different types of pain (acute, chronic, visceral, somatic) and how to assess pain intensity and location in animals. • PCC7.23.c - Describe the nervous pathways involved in pain transmission and how different pain medications affect these pathways. • PCC7.23. d - Describe the mechanisms of action, dosage, and potential side effects of various analgesics (non-steroidal anti-inflammatory drugs, opioids, local anesthetics).
• CC7.24 - Select appropriate anesthetic protocols, anesthetize, monitor, and recover patients.	• PCC7.24. a - Apply principles of perioperative drug administration, anesthesia, and local analgesia, including appropriate premedication in clinical scenarios. • PCC7.24. b - Describe pharmacokinetics and pharmacodynamics of anesthetics. • PCC7.24.c - Manage anesthesia complications (e.g., hypotension, apnea). • PCC7.24. d - Describe anesthetic drugs, their mechanisms, and contraindications. • PCC7.24. e - Adjust anesthesia dosages for different species and clinical conditions. • PCC7.24. f - Manage anesthesia-related complications, including respiratory and cardiovascular depression.
• CC7.25 - Manage patient comfort.	• PCC7.25. a - Use proper techniques for positioning animals for comfort during various procedures. • PCC7.25. b - Practice gentle and effective handling and restraint techniques to minimize stress and discomfort.

PLO 8: Formulate recommendations for preventative healthcare (animal health and well-being promotion, disease prevention, biosecurity, zoonosis, food safety, and environmental health)

Clinical Competencies	Pre-Clinical Competencies
• CC8.26 - Provide veterinary care to animals under field service/ambulatory conditions.	• PCC8.26. a - Use safe and effective techniques for handling various animal species and samples under field conditions. • PCC8.26. b - Use appropriate routes of administration (oral, injectable), dosage calculations, and safely handle drugs.
• CC8.27 - Recommend disease prevention measures.	• PCC8.27. a - Describe the general principles of immunity, vaccine types, and vaccination and deworming protocols. • PCC8.27. b - Describe general principles of infectious disease transmission, risk assessment, and methods to prevent outbreaks (protocols for disinfection and sterilization, quarantine, isolation). • PCC8.27.c - Identify reporting requirements for infectious diseases.
• CC8.28 - Provide nutritional counseling appropriate to life stage and health status of animal or population.	• PCC8.28. a - Discuss the nutritional requirements across species, life stages, and physiological states. • PCC8.28. b - Explain the role of nutrition in causing, preventing, and managing specific health conditions. • PCC8.28.c - Explain the importance of the components of balanced diets • PCC8.28. d - Evaluate nutrition product labels and basic diets.
• CC8.29 - Advise clients regarding routine dental care.	• PCC8.29. a - Apply knowledge of the anatomy of the oral cavity, common dental conditions, and principles of dental prophylaxis. • PCC8.29. b - Demonstrate usage of basic dental equipment.

• CC8.30 - Educate clients on prevention of common behavioral problems.	• PCC8.30.a - Differentiate between normal and abnormal behavior patterns. • PCC8.30.b - Describe the theory and application of practices to prevent and address common behavior problems.
• CC8.31 - Advise clients about husbandry and welfare needs, including transport.	• PCC8.31.a - Summarize the principles of animal welfare and ethics, including the five freedoms and ethical considerations related to animal care. • PCC8.31.b - Describe or list species-specific husbandry requirements such as housing, environment, and management for different species. • PCC8.31.c - Explain the risks and regulations associated with animal transport.
• CC8.32 - Educate clients about zoonotic and/or transmissible diseases, including reporting, quarantine, isolation, and appropriate disinfection.	• PCC8.32.a - Describe the principles of zoonotic disease transmission (e.g., routes of transmission and risk factors). • PCC8.32.b - Describe One Health concepts and the interconnection between animal, human, and environmental health. • PCC8.32.c - Apply principles of hygiene, disinfection, and sanitation.
• CC8.33 - Practice responsible use of antimicrobial agents.	• PCC8.33. a - Apply principles of antimicrobial stewardship and educate clients.

PLO 9: Communicate and collaborate effectively

Clinical Competencies	Pre-Clinical Competencies
• CC9.34 - Adapt communication techniques for diverse audiences (clients, colleagues) or different settings (i.e., emergency, euthanasia).	• PCC9.34. a - Prepare a case presentation to provide continuity of care. • PCC9.34. b Provide written information appropriate to the audience. • PCC9.34.c – Apply medical terminology appropriately.
• CC9.35 – Identify and apply principles of relationship-centered care. Actively explore other (clients, colleagues, team members) perspectives, including goals, expectations, beliefs, and constraints, while considering the human-animal bond and spectrum of care.	• PCC9.35. a - Listen attentively using both verbal and non-verbal skills • PCC9.35. b -Identify circumstances based on patient, client, and environmental factors that can influence care. • PCC9.35.c -Define the terms spectrum of care, contextual care, standard of care, and gold standard of care. • PCC9.35. d -Consider context when discussing previous care of the patient
• CC9.36 - Identify and employ strategies for engaging in difficult conversations with team members and clients (examples: euthanasia, financial discussions, delivering bad news, etc).	• PCC9.36. a -Demonstrate empathy and respect when discussing client circumstances
• CC9.37 – Communicate diagnosis, test results, and treatment options so the client and/or team member can understand. Show adaptability when contextual care is needed, collaborating with client to	• PCC9.37. a -Demonstrate principles of shared decision making • PCC9.37. b -Use language appropriate to the audience. • PCC9.37.c -Identify client, patient, and environmental factors that affect decision making. • PCC9.37. d – Recognize client autonomy with decision-making when choosing care options.

formulate a treatment plan. Create and communicate discharge instructions. ○ SCC9.37.1 – Facilitate decision by presenting a range of care options to a client based on contextual factors and available evidence. ○ SCC9.37.2 – Demonstrate flexibility and empathy when client requests alternative care.	

PLO 10: Demonstrate practice management and leadership skills

Clinical Competencies	Pre-Clinical Competencies
• CC10.38 - Document care and communication using professional terminology.	
• CC10.39- Ensure documentation fulfills professional and legal requirements.	• PCC10.39. a - List the components of a medical record • PCC10.39. b - Explain the requirements of the Veterinary Client Patient Relationship • PCC10.39.c - Create medical records that promote continuity of care
• CC10.40 - Advocate for the health and safety of patients, clients, and the team.	• PCC10.40. a - Explain how to develop a standard operating procedure • PCC10.40. b - Identify and apply safety protocols. • PCC10.40.c - Recognize a safety concern
• CC10.41 - Demonstrate time management strategies; prioritize tasks and delegate when needed. Understand roles and responsibilities.	• PCC10.41. a - Understand the interdependence of team responsibilities.
• CC10.42 - Apply financial principles to personal and professional decisions (treatment plans, procedures, cost-benefit analysis).	• PCC10.42. a - Explain work-related insurance, personal/professional/patient • PCC10.42.b - Understand debt and repayment plans • PCC10.42.c - Explain how providing a range of care and payment options can impact the practice team and management processes • PCC10.42. d - Explain the relationship between compensation packages and revenue generation • PCC10.42. e - Evaluate cost vs. benefit when deciding to employ a new procedure or equipment

PLO 11: Demonstrate a strong professional identity and behaviors expected of a veterinarian

Clinical Competencies	Pre-Clinical Competencies
• CC11.43 - Act within the bounds of the veterinary-client-patient-relationship and apply an ethical approach to professional decision-making.	• PCC11.43. a - Employ ethical principles and frameworks to aid in decision making • PCC11.43.b - Recognize and respond to evidence of neglect and abuse • PCC11.43. c - Reflect on one's own professional and personal identity and how it can influence care decisions
• CC11.44 - Compare career paths and weigh professional interests and personal goals. Engage in lifelong learning.	• PCC11.44.a - Explain different pathways to specialization • PCC11.44.b - Recognize unique career paths in veterinary medicine • PCC11.44.c - Engage in self-directed learning • PCC11.44.d- Demonstrate how to utilize resources to direct learning and decision making
• CC11.45 - Demonstrate clearly defined professional behaviors and values such as honesty and integrity, respect for others, confidentiality, and recognize autonomy of owners, self, and colleagues.	• PCC11.45.a - Develop clear professional values and identify behaviors that align • PCC11.45.b - Actively seek and respond appropriately to constructive feedback • PCC11.45.c - Invite input from others regardless of role or background • PCC11.45. d – Demonstrate self-reflection • PCC11.45. e – Identify resources and strategies to promote resilience

VEA – Preclinical Areas

System Abbreviation	System Number	System
GK	1	General Knowledge & Skills
BW	2	Behavior & Welfare
CV	3	Cardiovascular
DO	4	Dental & Oral Health
DE	5	Dermatology
EC	6	Emergency & Critical Care
EM	7	Endocrinology & Metabolism
GI	8	Gastroenterology
HI	9	Hematopoietic & Immune Disease
HB	10	Hepatobiliary
ID	11	Infectious Disease
MS	12	Musculoskeletal
NU	13	Nephrology & Urology
NR	14	Neurology
NT	15	Nutrition
OP	16	Ophthalmology
PR	17	Pulmonology & Respiratory Disease
TR	18	Theriogenology & Reproductive Disease

Species Abbreviation	Species Number	Species
DG	1	Dog
CT	2	Cat
EQ	3	Horse
BV	4	Cattle (Beef/Dairy)
SR	5	Small Ruminant (Sheep/Goat)
SW	6	Swine
CC	7	Camelid/Cervid

PL	8	Poultry (Turkey, Chicken, Ducks)
ZM	9	ZCA – Small Mammal
ZA	10	ZCA – Avian (Pet Bird)
ZH	11	ZCA – Herptile (Reptile, Amphibian)
ZF	12	ZCA - Fish

Example of species and body system-specific competency: PCC1.3.1.CV.EQ.1 – Atrial Fibrillation

Area	Percentage	Description
Anatomy	22%	Includes gross and microscopic anatomy, developmental anatomy, physical examination, and principles of radiology and diagnostic imaging
Physiology	23%	Includes organ physiology, physiological chemistry, genetics, nutrition, and breeding
Pharmacology	14%	Includes pharmacokinetics, pharmacodynamics, therapeutics, toxicology, and anesthesia/analgesia
Microbiology	20%	Includes bacteriology, mycology, virology, parasitology, immunology, diagnostics, and public health [regulatory, epidemiology, and zoonoses]
Pathology	21%	Includes general pathology, gross pathology, histopathology, pathogenesis, and clinical pathology [cytology and data analysis/diagnostics]