MU CVM Curriculum Level Outcomes

Updated: August 2, 2016

**CLO 1:**
Comprehensive patient diagnosis (problem solving skills), appropriate use of clinical laboratory testing, and record management

**CLO 2:**
Comprehensive treatment planning including patient referral when indicated

**CLO 3:**
Anesthesia and pain management, patient welfare

**CLO 4:**
Basic surgery skills, experience, and case management

**CLO 5:**
Basic medicine skills, experience and case management

**CLO 6:**
Emergency and intensive care case management

**CLO 7:**
Health promotion, disease prevention/biosecurity, zoonosis, and food safety

**CLO 8:**
Communication and ethical conduct

**CLO 9:**
Critical analysis of new information and research findings relevant to veterinary medicine

**CLO 10:**
Multicultural and diversity awareness
CLO 1: Comprehensive patient diagnosis (problem solving skills), appropriate use of clinical laboratory testing, and record management

1.1—The graduate will develop comprehensive approach to patient diagnosis (problem solving).
   The student can:
   - use knowledge of anatomy and physiology to perform a complete systematic physical examination of all body systems, distinguishing normal and abnormal findings,
   - obtain a signalment and complete history to collect relevant information about the patient(s),
   - generate and prioritize a problem list from clinical signs and history,
   - apply clinical reasoning skills to produce a ranked differential diagnosis list from the problem list,
   - develop a diagnostic plan, articulating the rationale for the approach.

1.2—The graduate will demonstrate appropriate use of diagnostic testing.
   The student can:
   - describe basic principles of routine diagnostic testing including potential sources of error,
   - consider the potential benefits and risks of performing diagnostic tests on the patient, in addition to recognizing any client financial constraints or sociocultural values, in order to develop a definitive diagnostic plan,
   - evaluate the diagnostic test results and clinical relevancy,
   - differentiate between definitive and tentative diagnoses.

1.3—The graduate will develop and maintain medical records, documenting relevant client and patient information, and communicate effectively with the animal health care team using medical records.
   The student can:
   - prepare a medical record that concisely summarizes all relevant patient information, utilizing a standard veterinary medical format that is readily understood by the health care team,
   - prepare a medical record that is legible, accurate, current, and conforms to all legal requirements.

CLO 2: Comprehensive treatment planning including patient referral when indicated

2.1—The graduate will develop a comprehensive treatment plan given the limitations of a case at hand.
   The student can:
   - list a range of potential therapeutic options for a given diagnosis,
• **weigh** the potential benefits and risks of available therapeutic options and **consider** the expected outcome(s), regulatory, ethical, and professional issues of therapeutic options, and financial constraints and compliance of the client for a given patient,

• **consider** current level of diagnostic confidence and **discriminate** between empiric and definitive therapeutic options,

• **formulate** a comprehensive therapeutic plan for patient problems for common domestic species,

• **communicate** therapeutic options clearly to the client in a manner that is readily understood and includes associated costs, potential complications, and expected outcomes, that facilitates the selection of a treatment plan.

2.2—The graduate will **assess** cases for criteria that indicate patient referral is warranted. The student can:

• **judge** their professional capabilities and **discriminate** between the patients they are capable of treating and those that require other assistance,

• **weigh** the limitations and availability of therapeutic and diagnostic capabilities

• **communicate** professionally with the owner and referral veterinarian to coordinate patient care before, during, and after the referral.

**CLO 3: Anesthesia and pain management, patient welfare**

3.1—The graduate will **apply** principles of anesthesia and pain management. The student can:

• use knowledge of anatomy and physiology to **evaluate** the patient prior to formulating an anesthetic and/or analgesic protocol(s),

• **explain** the physiology of pain and use knowledge of anatomy to **recognize** the clinical signs associated with pain in common domestic species,

• **state** a range of sedative, analgesic, and anesthetic drug options, **classify** them, and **explain** appropriate dosing, mechanism of action, duration of action, mode of elimination, potential drug interactions and contraindications, and side effects,

• **evaluate** pertinent patient information to **formulate** a safe and effective anesthetic and/or analgesic protocol(s) which also considers legal regulations, ethical implications, financial considerations of the client, and feasibility,

• **use** anesthetic and/or analgesic protocol(s),

• **locate** and **describe** the regional anatomy relevant to performing local and regional anesthetic techniques

• **describe** normal physiologic processes relevant to anesthetic monitoring and pain management,

• **evaluate** effectiveness of the protocol(s) (e.g., appropriate anesthetic depth) and modify them as needed to **manage** the patient

3.2—The graduate will **demonstrate** principles of humane and responsible treatment of animals (animal/patient welfare).
The student can:

- **state** the AVMA approved methods for humane euthanasia,
- **give examples** of appropriate methods for end of life care including hospice and palliative treatments,
- **explain** alternative viewpoints on contemporary social and ethical issues of animal welfare,
- **describe** guiding principles for the ethical use of animals in research,
- **describe** the Five Freedoms and their relevance to animal care,
- **describe** environmental enrichment techniques for pets, livestock, laboratory animals, and zoo animals,
- **describe** and **compare** common management systems for common domestic species.

**CLO 4: Basic surgery skills, experience, and case management**

**4.1**—The graduate will perform routine surgical procedures as primary or assistant surgeon. The student can:

- **locate** and **describe** regional anatomy relevant to performing entry-level surgical procedures, including surgical landmarks and approaches
- **perform** proper aseptic technique including surgical scrubbing, gowning, and gloving,
- **identify** the major classes and common types of surgical instruments and **state** their appropriate surgical applications,
- **demonstrate** proper handling of surgical instruments,
- **select** appropriate surgical instruments and **perform** appropriate handling and manipulation of tissues in order to minimize tissue trauma,
- **identify** the major classes of suture and other surgical biomaterial and **describe** their appropriate surgical applications,
- **select** the appropriate suture and pattern for the surgical situation and **state** the advantages and disadvantages of each.

**4.2**—The graduate will **evaluate** surgical cases and **prepare** plan(s) for case management. The student can:

- **explain** physiology and pathophysiology of common surgical conditions, and use this knowledge to **recognize** the indications and contraindications for a surgical intervention or treatment and **determine** appropriate timing and pre-surgical preparations,
- **explain** common surgical complications (e.g., hypothermia) and **identify** potential complications particular to a given surgical patient,
- **describe** surgical procedures that are appropriate for a given patient and **explain** the advantages and disadvantages of each procedure,
- **formulate** a surgical treatment plan for a patient based on benefits and risks to the patient as well as financial considerations and compliance of the owner,
- **explain** wound healing and closure for different tissue types and use this knowledge to **plan** for surgical and non-surgical wound management,
- **predict** potential wound complications,
• **develop** and **deliver** a communication plan that includes benefits and risks, as well as the potential complications, role of client in post-operative wound care, and costs to owner,
• **differentiate** between wound complications related to surgical technique and those related to patient factors.

**CLO 5: Basic medicine skills, experience, and case management**

5.1—The graduate will **evaluate** medicine cases, **perform** basic medical procedures, and **prepare** plans for case management.

The student can:
- **locate** and **describe** regional anatomy relevant to common medical procedures,
- **select** appropriate medical procedures, **weighing** the benefits and risks to the patient, client finances and values, as well as the safety of the patient, owner, and other members of the health care team,
- **describe** and **perform** the basic medical procedures on patients,
- **describe** common and significant diseases that are developmental, degenerative, metabolic, nutritional, neoplastic, infectious, immune-mediated, toxic, and traumatic in nature for each of the common domestic species,
- **use** knowledge of pathophysiology of common and significant diseases to **identify** and **explain** associated gross and microscopic lesions,
- **evaluate** the patient to determine grade and/or stage of disease to **predict** and **communicate** disease course and prognosis,
- **develop** a comprehensive treatment plan, including follow-up care and monitoring, to address both short and long-term needs of the patient,
- **use** knowledge of physiology and pathophysiology to **assess** patient response to medical treatments,
- **predict** potential complications of the treatment plan,
- **integrate** and **prioritize** new problems, tasks, and cases as they are presented.

**CLO 6: Emergency and intensive care case management**

6.1—The graduate will **evaluate** emergency medicine and intensive care cases and **prepare** plan(s) for case management.

The student can:
- **use** knowledge of anatomy and physiology to **recognize** a patient emergency based on physical examination and clinical findings,
- **generate** an appropriate treatment plan based on critical care patient evaluation,
- **develop** a triage protocol for timely assessment and prioritization of the medical needs of multiple patients,
- **identify** common medical procedures used to stabilized patients and **explain** the indications and limitation of each,
• classify common veterinary therapeutic products that are used to stabilize critical patients and explain their mechanisms of action, pharmacologic properties and effects, indications and contraindications,
• apply proper cardiopulmonary-cerebral resuscitation technique,
• use methods to prevent nosocomial disease,
• locate and describe the regional anatomy relevant to basic emergency procedures.

CLO 7: Health promotion, disease prevention/biosecurity, zoonosis, and food safety

7.1—The graduate will explain basic concepts of health promotion in regards to individual animals, herd health and public health.

The student can:
• describe the function of the immune system and apply this knowledge to create and analyze protocols for infectious disease prevention in individual animals and animal populations,
• design a vaccination and parasite management protocol for individual animals and animal populations,
• classify common veterinary therapeutic products used in disease prevention and explain their mechanisms of action, pharmacologic properties and effects, indications and contraindications,
• identify important bacterial, parasitic, fungal, and viral pathogens of animals,
• describe the pathogenesis of common infectious diseases and use this knowledge to generate a plan to ensure hygiene, biosecurity, and/or environmental modification to minimize health impacts,
• communicate to clients, the healthcare team, and/or the public appropriate plans to minimize health impacts,
• describe the regulatory, ethical and professional issues regarding infectious disease prevention
• identify the principles of biosecurity, the transport or movement of animals and people, and sanitary methods,
• identify diseases of regulatory importance and appropriate regulatory agencies,
• use knowledge of nutrition, wellness, and enrichment for age and use of common domestic species to analyze and create protocols for nutrition and health promotion.

7.2—The graduate will explain basic concepts of food safety in regards to animal use and production.

The student can:
• recognize safe and hygienic slaughter practices,
• describe legal, regulatory, ethical, and social issues of slaughter practices,
• apply knowledge of gross pathology and disease pathogenesis to identify disease in carcasses,
• identify safe storage and transport of animal products,
• use knowledge of pharmacokinetics to explain drug withdrawal times,
• communicate with clients and producers to promote compliance with food safety standards.

7.3—The graduate will analyze and create protocols to minimize zoonotic disease.
The student can:
• list common and important zoonotic agents,
• use knowledge of pathogenesis to identify clinical signs and transmission potential of common zoonotic diseases,
• recognize client-specific risks for zoonoses and communicate risks in a manner that is readily understood,
• develop and document communication plan(s) appropriate for various audiences including the healthcare team, non-professionals/public, and clients.

CLO 8: Communication and ethical conduct
8.1—The graduate will demonstrate active listening and communicate with diverse individuals, communities, clients, colleagues, staff, and the general public through both oral and written communication skills, using appropriate professional language.
The student can:
• describe and demonstrate the principles of active listening,
• describe the demonstrate the principles of good verbal and nonverbal communication techniques,
• use their situational awareness to adjust their communication techniques in order to be congruent with the situation and people present.

8.2—The graduate will demonstrate ethical and professional conduct.
The student can:
• assess situations that may pose a legal, ethical, or social issue and take measures to avoid or resolve the issue,
• list the various stakeholders in an issue and give examples of alternative perspectives,
• identify instances of professional misconduct or error and take appropriate corrective measures to prevent future errors,
• communicate professional mistake to client and/or healthcare team,
• apply principles of client and patient confidentiality,
• evaluate their leadership and communication strengths and areas for growth and identify actions and/or experiences to support their growth and professional development,
• demonstrate personal, professional, and organizational leadership skills in order to appropriately manage a patient or health care team,
• consistently demonstrate professional behavior when interacting with the health care team, communities, clients, and the general public as a representative of the profession.
CLO 9: Critical analysis of new information and research findings relevant to veterinary medicine

9.1—The graduate will perform a critical analysis of new information and research findings relevant to veterinary medicine.

The student can:

- **prepare** a question to address a knowledge gap and **utilize** appropriate resources to answer the question and knowledge gap,
- **identify** and **compare** available references,
- **explain** the differences and clinical relevancy of references and findings,
- **identify** credible sources of knowledge and **recognize** potential conflict(s) of interest or author bias,
- **integrate** new knowledge into their practice of veterinary medicine.

CLO 10: Multicultural and diversity awareness

10.1—The graduate will **demonstrate** personal and cultural awareness, **demonstrate** sensitivity to people different from them and **interact** with others without discrimination in professional settings.

The student can:

- **define** diversity and **cite** major categories of difference in people,
- **define** their identity in relation to cultural and social differences,
- **explain** how differences in major categories influence the thoughts and actions of themselves and others, **citing** examples,
- **explain** the value, importance, and benefits of diversity and inclusiveness in the profession,
- **recognize** the potential for bias and discrimination in their thoughts and/or actions in professional life,
- **implement** corrective actions to reduce bias and discrimination,
- **apply** their knowledge of diversity and inclusiveness in professional decisions.