



## 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

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### **CLO 2:**

Comprehensive treatment planning including patient referral when indicated

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### **CLO 3:**

Anesthesia and pain management, patient welfare

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### **CLO 4:**

Basic surgery skills, experience, and case management

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### **CLO 5:**

Basic medicine skills, experience and case management

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### **CLO 6:**

Emergency and intensive care case management

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### **CLO 7:**

Health promotion, disease prevention/biosecurity, zoonosis, and food safety

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### **CLO 8:**

Communication and ethical conduct

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### **CLO 9:**

Critical analysis of new information and research findings relevant to veterinary medicine

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### **CLO 10:**

Multicultural and diversity awareness

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

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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.

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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.

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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

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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.

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**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.

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### **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

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**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

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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.

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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

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**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

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**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

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**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.

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**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.

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**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**

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**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.

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**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

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**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

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**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.