

COURSE SYLLABUS

Laboratory Animal Medicine and Research

CVM 7045

2 Credit Hours/2 Week Course

Course Director: Janis Ott Joslin, DVM, Professor, Zoo and Wildlife Medicine

Office Location: VMC building, Room 226, Western University Campus

Contact Number: 909-709-3486 (O)

Email address: jjoslin@westernu.edu

Course Instructors: Clinical Preceptors are:

Richard Ermel, DVM; MVPH; PhD; DACLAM. City of Hope, Duarte, CA. e-mail: RErmel@coh.org Phone: 626-301-8270
Greg Lawson DVM; DACLAM. University of California, Los Angeles, CA. e-mail: glawson@mednet.ucla.edu Phone: 310-794-2571

David Wolf DVM, PhD, Loma Linda University, Loma Linda, CA. e-mail: dewolf@llu.edu Phone: 909-558-1000 ext 145087

Course Time and Location:

Course work schedule is at the discretion of the Clinical Preceptor but will be from 7:00/8:00 am- 4:00/5:00 pm. Students will participate in this 2 week course in groups of 2-4 at one of the following sites:

- City of Hope, 1500 Duarte Road, Duarte, CA 9101
- Loma Linda University, 11202 Benton Street, Loma Linda, CA 92357
- University of California Los Angeles, Lab Animal Division, 924 Westwood Boulevard, Los Angeles, CA 90024

Course Description: (Course Purpose, aims/goals)

This course is two weeks in duration and provides an introduction to laboratory animal veterinary medical practice. The etiology, pathogenesis, diagnosis, treatment, surveillance methods and prevention of common diseases of laboratory animals are reviewed. Additional topics include regulations governing research animal care and use, animal facilities management, clinical and anatomic pathology of laboratory animals, genetically modified laboratory animals (including transgenics and knockouts), occupational health and safety and handling and restraint of common laboratory species. At the end of this course students will value the role of veterinarians in biomedical research and have developed an educated opinion of the role of research in furthering the practice of veterinary medicine.

Students are expected to work in groups and actively apply problem based learning (PBL) techniques to every case they encounter.

Learning Issues: (Supporting The Course Purpose)

At the end of the course, the student is expected to:

1. Review the basic biology, care, and important diseases (e.g. bacterial, viral, parasitic, etc.) of common (rats, mice, rabbits, non-human primates) laboratory animal species.
2. List and explain the laws, regulations, and guidelines affecting laboratory animal medicine and science, and the principles of laboratory animal welfare, and biomedical models. Describe the Animal Welfare Act administered by the USDA (APHIS-Regulatory Enforcement of Animal Care) and the Public Health Service Policies on the humane care and use of Laboratory Animals.
3. Assess the justification for using animals in research and teaching.
4. Understand biosafety, which encompasses occupational health and safety and zoonotic diseases of common laboratory animal species.
5. Explore the career options in laboratory animal medicine and biomedical research
6. Describe current management strategies for dealing with common disease diagnoses in laboratory animal colonies, including rodents, guinea pigs, hamsters, rabbits, primates.
7. Describe how vertebrate animals are used for testing, research, and training.
8. Describe how laboratory animals are monitored in terms of care, health and usage.
9. Discuss the principles of health maintenance and biocontainment in laboratory animal colonies.
10. Understand the principles of management, housing and environment of laboratory animals.
11. Describe how the American Association for Accreditation of Laboratory Animal Care accredits research facilities and also how institutional policies are developed.
12. Be aware of alternate methods for research, testing and training designed to reduce the number of animals used in research.

13. Understand the role of research in furthering the practice of veterinary medicine.
14. Critically evaluate the veterinary medical literature involving the experimental use of animals.

Course Policies and Procedures: (Attendance/Dress Code etc. – specific to course)

Class attendance - Attendance and participation is required in order to optimize the educational benefit for all students. For details about attendance policy and all other policies and/or logistical issues related to 3rd year course, please refer to the Clinical Courses and Rotations Handbook.

Communication with course director: In order to address issues in a timely manner, e-mail (using the Western University server and e-mail account) and phone calls are to be the official means of communication.

Professional behavior – Professional behavior is conducive to a learning environment and is expected of all course participants. Professional behavior includes, but is not limited to, tolerance of other's beliefs and opinions, ability to communicate effectively, demonstrating respect for instructors, zoo staff and classmates, arriving on time, and being prepared for scheduled activities.

Honor code – In compliance with the University and College requirements and recommendations. Students need to review this information in the Western University Current Catalog and the Third Year Student and Clinical Preceptor Information in the Clinical Courses & Rotations Handbook

Students with special needs - Students seeking accommodations based on disabilities should contact the Center for Disability Issues & the Health Professions (CDIHP) office (909 469-5380) to coordinate reasonable accommodations for students with documented disabilities *prior to the beginning of the course*. Retroactive disabilities related accommodations will not be granted.

Dress Code - Wear normal work clothes, with closed toed shoes. Students may be required to wear Personal Protective Equipment (PPE) during the day, for example: disposable gloves, face mask/respirator, lab coat or coveralls, head cover, etc.

Case Logs/Clinical Skills Documentation - Clinical Skills are also documented in association with each case log. Be sure to complete this section as it provides you with a record of skills performed and the College uses this to document clinical skills acquisition for accreditation purposes.

Assessment: (Grades/Rubric/Exam)

The grade awarded for the course CVM 7050 will be based on the following:

1. 20% Assessment by Clinical Preceptor

The Clinical Preceptor will assess the student's medical and surgical interest, professional curiosity, and willingness to fully participate in the management of cases. This evaluation will be based on the following criteria:

This will be evaluated based on the following rubric:

1. The student demonstrated a basic understanding of the laws, regulations, and guidelines affecting laboratory animal medicine and institutional animal care and use programs.
2. The student demonstrated a basic understanding of the Institutional Animal Care and Use Committee (IACUC)-membership and responsibilities/role.
3. The student demonstrated a basic understanding of an occupational health and safety program as part of the overall care and use program.
4. The student demonstrated a basic understanding and appreciation of key role and complexity of a preventive health care program in Laboratory Animal Medicine.
5. The student adequately presented a clinical case and/or selected topic pertaining to laboratory animal medicine and addressed relevant questions.
6. The student's conduct was appropriate and professional (Dress, on time, language, concern for animal welfare, etc.).
7. The student exhibited appropriate problem solving skills and approach.
8. The student was involved, interested and self directed.
9. The student demonstrated appropriate communication skills (with doctors, staff, and possibly clients).
10. The student demonstrated and applied basic knowledge and technical skills for appropriate species and appropriate for his/her stage of development.

Course Subject Knowledge

N/A- Not Applicable	1-Rarely: Very problematic, area of grave concern. Performance is consistently poor for a 3 rd year veterinary student.	2- Occasionally: Performance needs improvement. Student has not yet gained personal command of the skill.	3- Most of the time: Performance of skill meets requirements; it is a good, solid performance, done most of the time as normally expected of a 3 rd year student.	4- Almost always: Performance of skill often exceeds expectations, is consistently excellent (i.e. above average) for a 3 rd year veterinary student.
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2. 20% Performance product

Performance product consisting of a 750 word document advocating or challenging the use of animals as animal models of a human disease (student's choice varying from Multiple sclerosis, arthritis, infectious diseases, medical devices, cancer, etc.). The document is to be written in the student's own words with proper citation noted in the text of the paper – students should review the WU CVM Academic Misconduct Policy and PowerPoint on Blackboard: "How to Avoid Plagiarism Rev by Pat Vader Western U Library 2008.ppt"). This paper should not have been previously submitted to any other course including this course. The paper is due by 8 am on the Monday after the last day of the course, to be submitted to the course director via e-mail, using the student's official Western University e-mail account. Students are encouraged to run the paper thru the Turnitin® software which can be accessed on Blackboard.

3. 60% Theoretical Knowledge and application of knowledge (Multiple choice, short answer format)

A 2 hour written summative exam will be conducted during the assessment week at the end of the 8-week block. Questions for the written exam (100 points) are selected based on the case logs, Power Point Presentations from students that completed the course before midterm and final exams respectively, several relevant articles provided through Blackboard, The student will also be tested on the following items:

1. Review the basic biology, care, and important diseases (e.g. bacterial, viral, parasitic, etc.) of common (rats, mice, rabbits, non-human primates) laboratory animal species.
2. List and explain the laws, regulations, and guidelines affecting laboratory animal medicine and science, and the principles of laboratory animal welfare and biomedical models. Describe the Animal Welfare Act administered by the USDA (APHIS-Regulatory Enforcement of Animal Care) and the Public Health Service Policies on the humane care and use of Laboratory Animals.
3. Describe the justification for using animals in research and teaching.
4. Describe biosafety, which encompasses occupational health and safety and zoonotic diseases of common laboratory animal species.
5. Describe the career options in laboratory animal medicine and biomedical research.
6. Describe current management strategies for dealing with common diseases in laboratory animal colonies, including rodents, guinea pigs, hamsters, rabbits, primates.
7. Describe how vertebrate animals are used for testing, research, and training.
8. Describe how laboratory animals are monitored in terms of care, health and usage.
9. Discuss the principles of health maintenance and biocontainment in laboratory animal colonies.
10. Describe the principles of management, housing and environment of laboratory animals.
11. Describe how the American Association for Accreditation of Laboratory Animal Care accredits research facilities and also how institutional policies are developed.
12. Describe alternate methods for research, testing and training designed to reduce the number of animals used in research.
13. Describe the role of research in furthering the practice of veterinary medicine.
14. Being able to critically evaluate the veterinary medical literature involving the experimental use of animals.

Seminar: Students completing the course at City of Hope will present a case at the end of the course.

Time: 20 minutes maximum

Maximum of 15 minutes for presentation

Maximum of 5 minutes for question

Content: Based on clinical case assignments in 1st few days of course, students are expected to concentrate the talk on 2 or more of the following:

1. Clinical history
2. Morphologic changes (gross and histological lesions)
3. Differential diagnoses
4. Diagnostic tests
5. Prevention/treatment

IMPORTANT: In order to pass the course, the student must submit the following to the Course director via e-mail (Deadline: Monday after the rotation is completed at 8:00 AM):

1. A copy of the PowerPoint presentation that was given during the rotation at the lab animal site.
2. Case log of cases seen during the rotation: The student is responsible for maintaining a daily log of the cases seen during her/his experience at the Lab Animal Facility (available online on BanWeb, and submitted at the end of course to the course director). Clinical Skills are also documented in association with each case log. Be sure to complete this section as it provides you with a record of skills performed and the College uses this to document clinical skills acquisition for accreditation purposes.
3. Written Essay (A4 format, 1 page 750 word document) as indicated above as the Performance product consisting of a 750 word document advocating or challenging the use of animals as animal models of a human disease (student's choice varying from Multiple sclerosis, arthritis, infectious diseases, medical devices, cancer, etc.).
4. At the end of the 2-week rotation, you will be expected to provide an assessment of the Clinical Preceptor and the clinical site:

Course Evaluation

Surveys are conducted regularly for all CVM courses to gather student opinion and observation on course content and conduct, and faculty and/or course director performance. This data helps improve instruction in the College curriculum, and survey outcomes are part of the College assessment program for accreditation purposes. Accordingly, it is expected that each student will complete, as scheduled, all surveys requested for this and other courses. This is a 'threshold' requirement for every College course, that is, a student has not formally completed any course until its survey obligations are met. It may be necessary to withhold a final course grade if there is a failure to comply with survey obligations. Your input is needed to make continual improvement in the course, which will affect your education experience and that of classes that follow you. The evaluation is to be done using the form on One45.

5.

Course Evaluation

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Grading Scale:

- **A** (90 ≥) a student with work at professional advanced level with evidence of understanding of all course material
- **B** (80-90) a student who has achieved a high standard of understanding in some topics, although in some areas and issues have moderate understanding
- **C** (70-79) a student who has achieved a moderate level of understanding in the majority of topics
- **D** (65-69) a student who has achieved fair understanding in a few topics and rudimentary understanding in the majority of the major learning areas
- **U** (<) a student who has failed to demonstrate an understanding of the learning areas

Course Schedule:

During the two week rotation the following activities/topics will be covered:

1. Occupational Health and Safety orientation - 2 hr
2. Clinical Rounds/ Pathology Rounds – 2-4 hr
3. Lab Animal Medicine (LAM) Seminar and LAM Journal Club - 2 -4 hr
4. Institution Sponsored Seminars and/ or IACUC Meeting – 2-4 hr
5. Animal Restraint and Basic Biotechnology - 2 hr
6. Aseptic Surgical Technique and Post-Op Care - 2 hr
7. Basic Necropsy Technique/Health Surveillance Program - 2 hr
8. Animal Resources Management - 2 hr
9. ACLAM LAM & Science Series II CD-ROM or with clinical vet/pathologist - 10 hr
10. Diseases of Lab Animals (Harkness & Wagner) assignments or with clinical vet/pathologist - 10 hr

Resources:

- Fox, JG et. al. (eds) 2002. Laboratory Animal Medicine. 2nd ed. Academic Press, San Diego, CA.
- Percy, DH, Barthold, SW (eds) 2001. Pathology of Laboratory Rodents and Rabbits. 2nd ed. Iowa State University Press. Ames, IA.
- ILAR Commission on Life Sciences, National Research Council. 1996. Guide for the Care and Use of Laboratory Animals. National Academy Press, Washington, DC.
- Public Health Service (PHS). 2000. Public Health Service Policy on Humane Care and Use of Laboratory Animals.

NIH, Office of the Director. Washington, DC. Reprinted 2000.

- Committee on Occupational Safety and Health in Research Animal Facilities, National Research Council. 1997 Occupational Health and Safety in the Care and Use of Research Animals. National Academy Press, Washington, DC.
- ARENA and OLAW, 2002 Institutional Animal Care and Use Committee Guidebook. 2nd ed. Office of Laboratory Animal Welfare, National Institutes of Health, Bethesda, MD.
- Kohn, DF et. al. (eds). 1997. Anesthesia and Analgesia in Laboratory Animals. Academic Press. San Diego, CA.
- Bennett, BT et. al. (eds) 1995. Nonhuman Primates in Biomedical Research: Biology and Management. Academic Press, San Diego, CA.
- Bennett, BT et. al. (eds) 1998. Nonhuman Primates in Biomedical Research: Diseases Academic Press, San Diego, CA.
- Manning, P et. al. 1994. The Biology of the Laboratory Rabbit, 2nd ed. Academic Press, San Diego, CA.
- Quesenberry, K and Carpenter, JW. 2003. Ferrets, Rabbits and Rodents: Clinical Medicine and Surgery (Ferrets, Rabbits & Rodents) 2nd, ed. WB Saunders, St. Louis, MO.
- Baker, DG (ed.) 2007. Flynn's Parasites of Laboratory Animals. 2nd ed. Blackwell Publishing, Ames, IA.

Journals:

- Laboratory Animal Science. As of 2000, this journal is now Comparative Medicine Contemporary Topics in Laboratory Animals Science
- ILAR Journal
- Veterinary Pathology
- JAVMA
- Laboratory Animals
- American Journal of Veterinary Research
- Journal of Medical Primatology

Links to other documents are posted in Blackboard

Appendices: (Detailed Schedules/Assessment rubrics/University, College Information/Forms/Surveys etc.)