

COURSE SYLLABUS - VMC 926: Topics in Wild Avian Medicine

Revised January 20, 2011

**Department of Clinical Sciences (DoCS)
College of Veterinary Medicine
North Carolina State University**

I. TITLE OF COURSE

- VMC 926: Topics in Wild Avian Medicine
- 1 credit hour
- Course is split over fall/spring semesters (spring registration)
- The maximum number for this course is 40 students
- For 1st – 4th year veterinary students
- This elective course partially fulfills the requirements for elective courses needed in the Zoological Medicine Focus area

II. COURSE DESCRIPTION

This course introduces students to wild avian medicine, husbandry and captive management issues. Emphasis will be placed on learning the following skills in a laboratory setting: species identification (especially raptors), capture and handling, physical examination, bandaging, diagnostic sample collection and treatment techniques. During the school year, students will also be expected to attend a minimum of five seminars related to wild avian medicine, participate in the fall semester Wildlife Medicine Course (scheduled Aug. 28-29, 2010 at the CVM), participate in the spring raptor lecture/lab (spring semester – date Feb. 19, 2011 – details to be distributed via WAAZM reps), and complete the three web-based lectures included on the course web site.

III. COURSE OBJECTIVES

At the conclusion of the course, the student should be able to:

1. Identify common raptor species found in North Carolina
2. Demonstrate proper capture, restraint, and handling methods for different raptor species
3. Demonstrate how to conduct a thorough physical examination and recognize common orthopedic and soft tissue injuries and abnormalities in wild birds.
4. Demonstrate basic treatment and sample collection procedures, including intramuscular injections, subcutaneous fluid therapy, tube feeding (passage of a crop feeding tube), and venipuncture
5. Demonstrate bandaging techniques, including application of figure-of-eight bandages, wing-body wrap bandages, and foot bandages
6. Recognize common captive management problems seen in raptors, including

foot problems (pododermatitis or “bumblefoot”), feather damage, and self-inflicted injuries, and describe preventive or treatment techniques for these problems.

IV. INSTRUCTOR

Course Coordinator

Laurel Degernes, DVM, MPH, Diplomat ABVP (Avian Practice)
Associate Professor, Avian Medicine and Epidemiology
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Office hours by appointment

V. SCHEDULE

Fall Semester – This course usually includes a fall raptor lab, but we had a unique opportunity this year. The National Wildlife Rehabilitators Association (NWRA) sponsors a Wildlife Medicine course taught at different veterinary schools each year. Two very experienced wildlife veterinarians, Drs. Cheryl Hoggard and Karen Shenoy, taught the course on Aug. 28-29 at the CVM. The course included a number of lecture and lab topics pertinent to wildlife medicine and rehabilitation.

Spring Semester – Course registration takes place during spring semester, however, except for the spring raptor lab, all other course activities and requirements can be completed during either fall or spring semester (or during winter break). The spring raptor lab will include a combination of topics generally covered during the fall lab (introduction to raptor natural history, species identification and characteristics, captive management problems, capture, handling, and restraint, physical examination and anatomy) and spring lab (basic diagnostic sample collection techniques such as venipuncture and cloacal swabs, emergency treatment techniques including IM injections, subQ fluid therapy, and passage of a crop feeding tube), wing and foot bandaging techniques, and the rationale for using these different techniques with sick or injured birds. Live, anesthetized, non-releasable raptors will be used in the lab (note that the capture and handling experiences will take place prior to induction of anesthesia). Cadaver birds may also be used to allow additional learning experiences with a variety of species and problems. The lecture/lab date, times, and location – Sat., Feb. 19, 2011 at the CVM – registration details TBA via WAAZM.

Seminars – A minimum of 8 hours of seminars is required, including 3 required and 1 optional seminar available through the course web site. A multitude of avian-oriented seminars are offered throughout the school year - Zoo Medicine Rounds (“Advanced Topics in Zoological Medicine”), or watch for announcements of other seminars or conferences. Students can contact the course coordinator for information, rounds schedules and other suggestions. Outside conferences may also be used to meet the seminar requirements, such as the Wildlife Rehabilitators of NC Symposium to be held Jan. 29-30, 2011 at the CVM / NCSU (<http://www.ncwildliferehab.org/> or

<http://www.cvm.ncsu.edu/conted/WRNC2011.htm> for registration for student volunteers). DVM student registration is free for students who volunteer to assist with a wet lab (announcements will be made early in the semester). If you attend this weekend symposium, you should be able to obtain all of the seminar credit hours for this course (note that some topics are mammalian, so only avian topics will apply toward the seminar requirement). See the conference web site or Dr. Degernes for more information.

VI. POLICIES

Required Materials

1. The dress code is casual for the labs, however, lab coats, sweatshirts, or long-sleeved shirts are recommended; no open-toed shoes are allowed.
2. Stethoscope
3. Pen light
4. We will furnish safety goggles and leather gloves (required for all live raptor handling) and all supplies needed for labs

Policies, Attendance, and Homework Assignments

1. This is a one-credit course that is spread over fall and spring semesters, however, course registration is done in the spring.
2. The fall NWRA Wildlife Medicine Course and the spring raptor lab will be scheduled during a weekend (2 days for the NWRA course and ½ day for the spring raptor lab) during the semester. The date for the NWRA course was August 28-29, 2010, and the date for the spring raptor lab is Feb. 19, 2011. A morning and afternoon spring raptor lab will be held if there is enough interest (approximately 20 students per lab). Raptor labs may be rescheduled for adverse weather conditions.
3. In order to receive course credit, students are expected to attend both the NWRA course and the spring raptor lab during a single academic year, review the 3 required web-based lectures, and attend a minimum of 5 hours of avian related seminars during the school year (can include the one optional online web-based lecture). Students who have taken previous fall raptor labs may contact the course coordinator for optional release from the NWRA course. Students may select wild avian seminar options from a number of sources, including any wild avian or general avian topics covered during one of these seminar series or opportunities:
 - Topics in Zoological Medicine I & II (CBS 817/818; schedule on WAAZM board; avian topics only); Thursdays, 4:15-6:00 pm, D-239 North
 - WAAZM noon seminars (avian-oriented topics only)
 - House Officer seminar series (avian-oriented topics only)
 - Wildlife Rehabilitators of NC Symposium (see information in earlier section)
 - Other options may include avian topics at local, regional, or national

conferences (examples - NC Vet Med Conference, Association of Avian Veterinarians conference, Zoo Veterinarians conference, Wildlife Veterinarians conference, Mid-Atlantic States Association of Avian Veterinarians conference, North American Veterinary Conference, SCAVMA Symposium, wildlife rehabilitation conferences or workshops, or other conferences with avian topics).

- Note that attendance at required didactic lectures (eg, avian lectures in VMC 927, 931, 953, or VMP 964) or lectures during selectives will not count toward the avian seminar requirements.
 - Also note that attendance at the NWRA Wildlife Medicine Course lectures will not fulfill any of the avian seminar requirements.
4. If students are unable to meet all of the attendance requirements of the course, they should request a withdrawal from the course before the published university deadline for dropping a course. Failure to meet course requirements can result in an incomplete grade at the end of spring semester and a grade of "U" at the end of the following fall semester. Students who miss a scheduled lab will not have an opportunity to take a "make-up" lab. Students should not sign up for this course if they are not certain that they can meet the course requirements (i.e. students should have already completed the fall semester NWRA Wildlife Medicine course, and have attended 2-3 of the avian seminars, or have plans to attend the required number of seminars during spring semester). If the spring raptor lecture/lab is missed, it will not be possible to make up the missed class by the end of fall semester (an incomplete grade must be completed within one semester). If a student has participated in previous fall raptor labs and did not participate in the NWRA Wildlife Medicine course, please contact Dr. Degernes to discuss possible options.
 5. Students should observe the policies stated in the CVM Student Handbook. Students are expected to observe all components of the CVM "Code of Conduct" as detailed in the CVM Student Handbook and conduct themselves as professionals in all matters, including honesty and ethics. The non-releasable birds used in these labs will be euthanized at the completion of the lab. Students will have the opportunity to use cadaver birds instead of live birds during the lab, if desired, but this must be pre-arranged (it takes a day to thaw them prior to a lab, and they are not always available, unless requested in advance).
 6. Animal Handling & Safety - You will handle dangerous animals in these laboratory sessions. When handling any animal, there is always some danger of injury to you or transmission of zoonotic diseases. To reduce these risks, always handle animals carefully and according to instructions given in class. We highly recommend that you wear protective clothing (smocks, lab coats, or coveralls) over street clothing in the laboratory where animals are handled. Avoid putting things in your mouth (pencils, needle shields, etc.) when working with animals. When a laboratory session is finished, wash your hands thoroughly with soap and water. If you have a health condition that may influence your participation in the laboratory, please notify the course instructor or coordinator so your health can be safeguarded.
 7. Accommodations for Students with Disabilities - Reasonable accommodations

will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653.

Grading and Seminar Documentation

The rotation will be graded on a Pass / Fail basis, as determined by group consensus among teaching personnel involved in the rotation. Students will be assessed on the basis of their knowledge and active participation in all laboratory exercises and their attendance and documentation at avian seminars (as listed below). There are no exams in this course. At the end of each raptor lecture/lab, students may be asked to fill out an instructor evaluation anonymously.

The students must document their participation in 3 required web-based lectures and attendance at a minimum of 5 hours of avian seminars during the course of the school year. **Documentation for seminars** should include the title and speaker of the presentation, plus the date, location, and length of the talk. For both web-based lectures and seminars, the student is asked to list 1) what they thought were the three most important points or valuable “take-home” messages of the seminar; and 2) any questions that were not clear from the seminar. All requested documentation must be submitted to the course coordinator by **noon on the last official day of classes, spring semester** (CVM schedule). Students are expected to contact the course coordinator with any questions or concerns about any seminars that may be in question. A “Question and Answer” session will be scheduled toward the end of spring semester to provide a forum to answer students’ questions, and to discuss any other questions of interest related to wild avian medicine.

VII. RECOMMENDED TEXTBOOKS & OTHER USEFUL RESOURCES

There are no required textbooks for this course. The following list of avian and raptor textbooks may be useful, with comments added by course coordinator.

- ARENT LR. 2007. *Raptors in Captivity: Guidelines for Care and Management*. LR Hancock House Pub, Blaine, WA (excellent book on caring for captive raptors)
- BENNETT, RA AND AB KUZMA. 1992. Fracture management in birds. *Journal of Zoo and Wildlife Medicine* 23(1):5-38. (excellent review paper on avian orthopedics)
- BENYON PH, FORBES NA, HARCOURT-BROWN NH (eds) 1996. *Manual of raptors, pigeons, and waterfowl*. Ames IA, Iowa State University Press. (good general information)
- CAMPBELL TW. 1995. *Avian Hematology and Cytology*. 2nd Ed. Iowa State University Press, Ames, IA. (useful for blood cell identification, and interpreting blood smears and cytology slides)
- COOPER JE (ed). 2002. *Birds of Prey: Health and Disease*, 3rd Ed. Blackwell Science / Iowa State University Press, Ames, IA (comprehensive textbook)
- FERGUSON-LEES J, CHRISTIE DA. *Raptors of the World*, 2001, Houghton-

Mifflin Co, Boston, MA (this is the best book on my shelf – it has excellent illustrations and information about raptors from all over the world!!)

- FOWLER ME (ed.): *Zoo and Wild Animal Medicine*, 2nd ed., 1986, W. B. Saunders Co., Philadelphia. (chapters on raptor physiology, captive mgt., diseases, anesthesia, orthopedics).
- FOWLER ME (ed.): *Zoo and Wild Animal Medicine, Current Therapy 3*, 1993, W. B. Saunders Co., Philadelphia. (selected chapters on aspergillosis, bumblefoot, ophthalmology, diseases of raptors)
- HARRISON G, LIGHTFOOT T. 2006. *Clinical Avian Medicine*, Vol. 1 & 2. Spix Pub, Palm Beach, FL. (one chapter on raptors, plus good general avian medicine/surgery information – this reference is more suitable for companion avian practice, but useful for other species too).
- HEIDENREICH M. 1997. *Birds of Prey: Medicine and Management*. Malden, MA, Blackwell Science (great textbook on raptors with beautiful illustrations; expensive ~\$175!)
- LUMEIJ JT, REMPLE D, REDIG PT, LIERZ M, COOPER JE (eds): *Raptor Biomedicine III*. 2000. Zoological Education Network, Inc., Lake Worth, FL (selected chapters on medicine, surgery, anesthesia, and conservation)
- MURPHY, C 1987. Raptor ophthalmology. *Compendium on Continuing Education in Veterinary Practice* 9:241-260. (excellent review article with illustrations)
- OROSZ, SE, ENSLEY P, HAYNES C. 1992. *Avian Surgical Anatomy - Thoracic and Pelvic Limbs*. W.B. Saunders, Co., Philadelphia. 139 pp. (excellent anatomy textbook on surgical approaches for long bone fracture repair, but unfortunately, this text is out of print)
- REDIG, PT 1993. *Medical Management of Birds of Prey*. The Raptor Center at the Univ. of MN, St. Paul, MN (good overview of raptor diseases, captive mgt. problems and rehabilitation techniques)
- REDIG PT, COOPER J, REMPLE J, HUNTER DB (eds.): *Raptor Biomedicine*, 1993, Univ of Minnesota Press, Minneapolis, MN. (selected chapters on pathology, surgery/anesthesia, raptor medicine, and toxicology)
- SAMOUR J. 2008. *Avian Medicine, 2nd Ed*. Philadelphia, PA, Mosby (good book, mostly raptor/wild bird oriented)
- SAMOUR J, NALDO J. 2007. *Anatomical and Clinical Radiology of Birds of Prey*. Philadelphia, PA. Saunders/Elsevier (excellent illustrations and line drawings; expensive ~\$190!)

VIII. Power Point Seminars

On the web site – <http://moodle.wolfware.ncsu.edu/course/view.php?id=7985>

The first 3 seminars are required for the course; the fourth seminar is optional and can be used for one of the 5 hours of elective seminars.

1. Raptor Physical Examination, Handling, and Anatomy
2. Captive Management Issues With Raptors
3. Lead Poisoning in Trumpeter Swans
4. Avian Field Surgeries in Alaska