

POSTGRADUATE DEPARTMENT

Program	Wild Animal Health and Conservation Medicine
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Course title:	<u>Wild Animal Health and Conservation Medicine</u>
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MSc	X
PhD	X
MONTH:	<i>October</i>
LOCATION:	Campeche, Mexico

CODE	<i>TS3000 (Masters)</i> <i>SA5058 (PhD)</i>
CREDITS	6

AIMS

The main goal of this course are to introduce the student to four major emerging disciplines in conservation biology that are having more and more importance for professionals in natural resource management. These are: Wild Animal Health, Conservation Medicine, Ecological Epidemiology and Emerging Infectious Diseases.

Aims:

After completing the course, the students are expected to have:

1. Acquired the theoretical basis of Conservation Medicine in order to apply them in preliminary evaluations of wild animal health.
2. Understand the relationships between wild animal health, ecosystem health and public health.
3. Conceptual understanding of the methods used in Ecological Epidemiology.
4. Acquired knowledge on the main emerging infectious, zoonotic, and prevalent diseases affecting the health of wild animal populations, the ecosystems where they live and public health in Mexico and the world.
5. Acquired the basic methodological tools to be able to perform preliminary evaluations in wild animal health populations within the principles of Conservation Medicine.

COURSE PROGRAM (SHORT VERSION):

1. Wild Animal Health

- a) Health as an integrative concept.
- b) The relationships between wild animal health, ecosystem health and public health.
- c) Historical background.
- d) The relationship between conservation biology, wildlife management and wild animal health

2. Conservation Medicine

- a) Another crisis discipline?
- b) Origins of the discipline
- c) Ecosystem health, biomedical research and conservation
- e) Zoonosis, biodiversity and conservation
- f) Health of terrestrial ecosystems (selected topics)
- g) Health of marine ecosystems (selected topics)

3. Ecological Epidemiology: basic principles in amphibians, reptiles, birds and mammals.

- a) An introduction to basic epidemiological terminology and concepts.
- b) An introduction to the ecology of wildlife diseases.
- c) An introduction to diagnostic pathology.
- d) Necropsy procedures.
- e) General wildlife capture, handling and immobilization procedures.
- e) Specimen and sample collection and preservation
- f) Procedures in clinical diagnosis
- g) Wildlife health monitoring procedures
- h) Wildlife health emergency procedures

4. Emerging infectious diseases.

- a) Importance of the study of emerging infectious diseases.
- b) Emerging Infectious Diseases and global climate change.
- c) Emerging infectious diseases and the conservation of biological diversity.
- d) EID, wildlife trade and consumption and the health of global human populations.
- e) Case studies in EID:
 - Reptiles and amphibians
Chitrydiomycosis and the global decline in amphibian populations.
Salmonellosis
 - Birds
West Nile Virus in America south of Mexico.
Plasmodium and the birds of Hawaii
 - Mammals
Rabies in wild mammals
Canine distemper in wild carnivores worldwide.
 - Free case studies (student seminars)

MAIN TEACHING ACTIVITIES:

The course is mostly theoretical with two major practical sessions at the end of the course.

1. The main professor will be teaching most of the basic topics through power-point presentations.
2. It is expected the participation of several invited speakers for special topics in particular during the section 3 of the course.
3. The students will be preparing and exposing the case studies on EID that would be sorted with a draw at the beginning of the course.
4. One visit to a wild animal park is planned to critically evaluate the wildlife health conditions

and facilities.

5. The main practice of necropsy procedures and sampling management will be carried out in a local Animal Pathology laboratory with which an formal agreement has been arranged.
6. Students taking this course as part of the PhD program will receive extra tutorial time for the discussion of papers and research activities.

STUDENT EVALUATION:

Students taking the course will be evaluated as follows:

- 30% Participation (essays and assignments)
- 40% Preparation and presentation of seminars.
- 30% Final examination (written, multiple option and all comprehensive)

SELECTED REFERENCES:

- Aguirre, A. A., R. S. Ostfeld, G. M. Tabor., C. House, and M. C. Pearl. (editors). 2002.** Conservation Medicine: ecological health in practice. Oxford University Press. 407 pp.
- Deem, S. L., Karesh, W. B. and Weisman, W. 2001.** Putting theory into practice: wildlife health in conservation. *Conservation Biology*. 15: 1224- 1233.
- Fowler. M. E. and R. E. Miller. (editors). 2003.** Zoo and Wild Animal Medicine (fifth edition). Saunders Publishing Co. Philadelphia. 782 pp.
- Friend, M and J. C. Franson. (editors).1999.** Field manual of wildlife diseases. US Geological Service. Washington, DC. 425 pp.
- Frye F.L. (1991).** Reptile Cre: *The Biomedical and Surgical Aspects of Captive Reptile Husbandry*. Krieger, Malabar, Florida (volume I and II).
- Hudson, P. J. A. Rizzoli., T. Grenfell., H. Hesterbeek., A. R. Dobson. 2002.** The ecology of wildlife diseases. Oxford University Press. 197 pp.
- Deem, S. L., Noss, A. J., Villaroel, R., Uhart, M. M. and Karesh, W. B. 2004.** Disease survey of free-ranging grey brocket deer (*Mazama gouzoubira*) in the Gran Chaco, Bolivia. *Journal Tropical Diseases*. 40: 92-98.
- Rapport, D., R. Costanza., P. R. Epstein., C. Gaudet and R. Levins. 1998.** Ecosystem Health. Blackwell, Scientific Publications. 372 pp.
- Stevenson, M. 2004.** An introduction to Veterinary Epidemiology. Epicenter. Massey University, New Zealand. 83 pp.
- Valenzuela, D., Ceballos, G. and García, A. 2000.** Mange epizootic in white-nosed coatis in western México. *Journal of Wildlife Diseases*. 36: 56-63

GENERAL INFORMATION ON ECOSUR

El Colegio de la Frontera Sur (**ECOSUR**), a multidisciplinary scientific research centre in southern Mexico, presents a M. Sc. program in Natural Resources and Rural Development, and a Ph. D. in Ecology and Sustainable Development (with orientations in Biodiversity Conservation, Agroecology and Pest Management, and Population, Environment and Rural Development). The aim is to train human resources capable of analyzing, identifying and evaluating the limitations to development, and to undertake original research that will contribute to the solution of problems

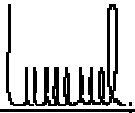
posed by rural development and natural resource conservation.

ECOSUR is present in five cities (San Cristóbal de Las Casas, Tapachula, Chetumal, Campeche, and Villahermosa). It has 120 professors-researchers, and an average of 100 students in the M. Sc. program and 60 doctoral students. Students come mainly from Mexico and Central America, but also from the Caribbean, South America, Europe, and other world regions.

More information can be obtained at : <http://www.ecosur.mx>

INFORMATION ON THE COURSE DIRECTOR

Dr. Manuel Weber (DVM, National University of Mexico 1988; M.Sc in wild animal health, University of London, UK 2000; PhD, ecology and conservation, University of Durham UK, 2005) has been working in research and teaching in wildlife ecology and conservation in Mexico and other Latin American countries for the past 15 years. He has published more than 15 scientific papers on large mammals (mostly ungulates) ecology, conservation and diseases and a landmark book on deer ecology and conservation in Mexico. He is a researcher at the Department of Wildlife Ecology and Conservation in ECOSUR-Campeche (mweber@ecosur.mx)



Manuel Weber, MVZ., M.Sc., PhD
Course Director

Septiembre 9 de 2005
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