

Risk Assessment and Mitigation for the Use and Management of Veterinary Agents

Tentative Course Syllabus

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Selected texts:

Impacts of Pharmaceuticals on the Terrestrial Environment, Taggart et al. (2015)

AND

Veterinary Pharmaceuticals, Kolar et al. (2015)

In: Pharmaceuticals in the Environment, edited by R.E. Hester and R.M. Harrison

Reading packet: Diclofenac and the Asian Vulture Crisis

Reading packet: Sodium pentobarbital, companion/livestock animals and wildlife

Reading packet: Ivermectin and dung beetles

Reading packet: Inadvertent threats to captive wildlife in rehabilitation and zoo facilities

Reading packet: The importance of veterinary agents on, and effects to, human communities

Silent Spring – Rachel Carson

Carbofuran and wildlife poisoning: global perspectives and forensic approaches – Edited by N. Richards (selected chapters)

Course Description: This course has been developed for upper-level students with the desire to acquire a comprehensive understanding of the hazards that veterinary agents can pose to wildlife

and more broadly to the environment, in order to develop pragmatic responses and creative solutions.

Through a series of case study-related assignments and online discussions, students will learn to recognize then assess the harmful consequences that arise when various classes of veterinary agent are administered and the different means by which they gain entry and persist in the environment. A comprehensive overview of risk assessment approaches used to mitigate these hazards and the suite of actions that can be taken to pre-empt and mitigate risks, will be provided. Students will also gain deeper insight into the breadth of pertinent environmental and wildlife regulations, with examples of relevant stakeholders from whom to gather salient information and form partnerships for best management and drug administration practices within their own communities.

Prerequisite: Introduction to Critical Thinking, Environmental Monitoring and Risk Assessment of Veterinary Agents

Course Objectives: Upon completion of this course, students will have the ability to:

- Evaluate a product's potential repercussions to the environment through a number of critical stages - from R&D to administration, disposal and beyond;
- Apprise themselves of the local regulations for safe/legal usage, expired product and carcass disposal;
- Be conversant with the relevant wildlife and environmental regulations, and be aware of the associated penalties - whether for veterinarians or members of the public – when these are for their contravened;
- Recognize when the available regulations offer inadequate protection – or when a product is inherently unsafe to wildlife - and seek out appropriate courses of action or assistance;
- Identify key stakeholders and decision-makers within their immediate community and elsewhere to develop partnerships through which to implement environmentally safe veterinary agent management practices and outreach initiatives.

Topics:

Module 1: Then as now – why the underlying message of Silent Spring remains relevant today, as it pertains to veterinary agents and the scale of their usage

Module 2: Case 1 - Sodium pentobarbital, companion/livestock animals and wildlife

Module 3: Case 2 - Ivermectin and dung beetles

Module 4: Case 3 – Secondary exposure of captive wildlife to veterinary agents and other toxic compounds (e.g., heavy metals, rodenticide) in zoos and rehabilitation facilities

Module 5: A comprehensive review of the existing wildlife and environmental protection worldwide – using case studies 1 – 4 for reference and perspectives

Module 6: Dissecting and critiquing existing regulations

What are the overall strengths of the available regulations?

What are some of the inconsistencies and inadequacies in the existing regulations, and how do we identify them?

What happens when the existing regulations offer inadequate protection?

How do we proceed if no regulations exist for a particular exposure/mortality scenario?

Examples of discrepancies in the mandate and recommendations made by regulatory bodies, pharmaceutical agencies and veterinary agencies.

Module 7: The nuts and bolts of the risk assessment

What constitutes ‘risk’, and in what specific contexts?

How do we identify a particular risk and likely susceptible species?

What are the criteria used to select test species?

Toxicity threshold calculations and estimations of the likelihood of exposure.

Module 8: A critique of current risk assessment approaches and perspectives drawing from the case of nonsteroidal anti-inflammatory drugs and the Asian Vulture Crisis

Is identifying risk the same thing as anticipating it?

Risk assessment perspectives obtained from the laboratory prior to product release, versus what happens once a product actively enters an ecosystem;

Single compound safety testing versus mixture exposure scenarios;

Metabolism/biotransformation of ostensibly safe products into toxic compounds (e.g., aceclophenac to diclofenac).

Sample risk assessment scenario to work through.

Module 9: Beware erroneous perceptions and assumptions!

Designations of safety (i.e., human consumption parameters) that inform wildlife management practices and risk assessments;

Veterinary, conservationist and public/consumer perceptions of product labels and product safety

Module 10: Stakeholders, community responsibilities and partnerships

What responsibilities does a veterinarian have regarding provision of information about the management of residue-bearing carcasses and safe disposal of therapeutic agents?

Who might a companion and livestock veterinarian want to contact and interact with in their community (e.g., landfill managers, wildlife agents...)?

Unanticipated events – euthanasia drugs and wildlife mortality revisited.

Module 11: Education and Outreach

What veterinarians, members of the public, decision-makers and managers do and don't know, and why it matters;

Tailoring information campaigns for the public, the veterinary community, analysts, risk assessment specialists and policy-makers, and identifying optimal venues for disseminating them;

How can we know about an emerging concern as quickly as possible, and how do we remain informed – identifying key sources of information outlets: news, listservs...

How do we develop a keen eye for emerging issues that may be masked?

Module 12: What will you do now?

This concluding module will be entirely discussion-based, and will give students the chance to incorporate the material presented to them throughout the course to formulate their concerns and share strategies and goals for going forward, based on their chosen professional route.

Getting Started:

To get started, briefly introduce yourself via the discussion board located in the left-hand menu on the homepage of the course. Specifically, please explain your reason for wanting to take this class, and the area(s) of veterinary medicine you are especially interested in pursuing. Once you have responded to the Introduction you will then go to the first module. Read through the course content and any required reading listed in the module introduction. Do not hesitate to contact your instructor at any time if you need guidance; if you are unsure about the focus of the assignment; if you have assignment questions or questions relating to the course content. If you don't tell us you need help, we can't help you!

Revision and Notes:

As you go through the semester, keep copies of important emails, bulletins and assignments you may use for revision as these will be purged from the course at the end of the semester. We recommend you make a copy of the course modules since this will be the only access you will get to these materials. We will not be able to provide you with copies of course content once the course is removed from your account.

Course Assignments:

Progress through this course will be assessed with quizzes associated with each module. Module quizzes will be worth 20% of the overall grade. There will be a midterm written assignment and a final written assignment each worth 30% of the final grade. Regular and active participation on the discussion boards will be worth 20% of the final grade.

Assignment Deadlines:

Please review the information regarding the policy for missed deadlines in the section on Instructional Policies. In some courses content modules may be released before the scheduled calendar date to help those who need to work ahead because of work commitments, court appearances, and work related travel. If a module is released ahead of time, the deadline for the assignment and/or quiz will remain the same as it is on the course calendar.

Communication:

Course Email, not the discussion board, should always be used to contact the faculty or staff if you have a problem of a personal nature. If you are having technical problems with the course content (downloads, etc.) or you are unable to access your course interface, please contact us directly, and please don't spend hours trying to get something to work as this will only lead to frustration. We don't want any of you to be offline for any length of time. Contact us as soon as you can so we can check it out and help you. If you are experiencing difficulty with your access to course email then please email your course instructor directly via regular email. In that email, make sure you give your name and the name of your course. Please respond to all emails from your instructor or TA. When we email you we are usually contacting you because we want to

help you. If you have a question about your grade, an exam, or assignment question, please email us and we'll be happy to help you.

Bulletin Board:

The course bulletin board can be used to post content related questions and assignment materials when necessary. Please ask me questions any time; I am here to help you. Please do not use the community forum to ask specific questions about your current course content, assignments etc. It's VERY important that you read all the discussion bulletins that have been posted. I will use this site to post important information relating to content or assignment changes, deadlines etc. Since postings can accumulate quickly, please login each day to stay on top of these postings or you may miss important information. Please make sure you don't post assignments that are supposed to be submitted to the assignment drop box. If you accidentally do, email me as soon as you can and I'll delete it for you.

Grading:

All written answers must be completed in your own words. Copying from other sources is not acceptable and may be considered plagiarism. Failure to complete an assignment in your own words may result in you receiving a score of 0 (zero) for the assignment. If you lose your internet connection during your quiz time and scores are not recorded simply email the instructor for assistance. Always include your name when communicating with the course instructor. Students will receive individual feedback on points lost on the assignments. The comments of the TA or professor can be viewed on the assignment submission page for the corresponding module found on the last page of each module. Students can check their progress in the course by viewing their grade records via the course interface.

Grades will be assigned as follows:

A 90% or Above

A- 88 - 89%

B+ 85 - 87%

B 80 - 84%

B- 78 - 79%

C+ 75 - 77%

C 70 - 74%

C- 68 - 69 %

D+ 65 - 67%

D 60 - 64%

D- 58 - 59%

E < 58

Registrar's Grade Policy regulations at

<http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>

Makeup Policy:

Make up assignments are not usually given, but may be at the discretion of the course instructor after evaluation of the circumstances leading to the request.

Grade Changes:

Grades will be changed only when a grading error has been made. If you think an error has been made, you should email the instructor as soon as possible. Your entire assignment will then be re-graded.

Instructional Policy:

This course is part of the distance education program at the University of Florida. Instead of traditional lecture format, the medium for communication between course instructors, teaching assistants and students will be via Canvas, a user friendly Web-based classroom management tool.

Attendance Policy: Students must participate in the bulletin board discussions, and are required to visit the course website daily for important updates and bulletins. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Class Participation: Students are expected to constructively join in bulletin board discussions with appropriate preparation, to post interesting and relevant information on the class bulletin board, and to interact professionally with their classmates.

Performance Expectations: Students are expected to produce quality work of a standard comparable to any graduate level didactic course. Bulletin postings and discussions must be legible, constructive and appropriate. Students are required to think for themselves and will be expected to complete assignments that require the application of logic and reasoning skills when the answer may not be found in a book or the course notes. Students must log in and check for emails, messages, or updates once daily during the semester.

Plagiarism: Plagiarism includes any attempt to take credit for another person's work. This includes quoting directly from a book or web site, without crediting the source. Sources should always be referenced, a link to the website added, or quotation marks placed around the material. However, we expect more than simply cutting and pasting in this graduate level course. Students are expected to review, evaluate and comment on material they research, rather than simply copying relevant material. Your work will be graded accordingly.

Assignments: While we understand that our students have other work and personal commitments, we expect every effort to be made to meet these deadlines. If for some reason, because of circumstances beyond your control, you are unable to meet an assignment deadline, students should e-mail the professor and explain the situation in advance. Being consistently late in submitting assignments disrupts the discussion of topics on the bulletin board and will therefore result in loss of marks for that assignment up to a full letter grade. If you email us we will work with you around the deadline. If you have outstanding assignments at the end of the semester we will send you a follow up email as a reminder and as a means to determine your plans for completion. If you do not respond to us before the final day of classes you will be assigned a grade based on the completed assignments.

Incomplete grades: Under special circumstances, if a student is unable to finish a course before the end of the semester we may be able to assign an incomplete grade. An incomplete grade is a non-punitive grade assigned at the discretion of the course instructor. In this course an incomplete grade may be assigned if 1/3rd or more of the course assignments have been completed and if the student has remained in communication with TA's and instructors throughout the course, or has made an effort to request an incomplete grade. If an incomplete grade is assigned, outstanding assignments must be completed by the end of the next semester. If the assignments are not completed in this time you will be assigned a grade based on the completed assignments.

Drop Dates: consult the UF Calendar of Critical Dates at <http://www.forensicscience.ufl.edu/Students/Dates.asp>

Students must inform us that they are withdrawing from a course to ensure appropriate tuition reimbursement. Deleting yourself from the course roster does not officially withdraw you from a course.

Important Dates:

For Assignment deadlines - see the course Calendar in Canvas.

For other important dates, consult the UF Calendar of Critical Dates and <http://www.registrar.ufl.edu/>

Additional information on the University of Florida Grades and Grading Policies may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

“Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting the accommodation”

University’s Honesty Policy (cheating and use of copyrighted materials)

Academic Integrity – Students are expected to act in accordance with the University of Florida policy on academic integrity (see Student Conduct Code, the Graduate Student Handbook or this web site for more details:

www.dso.ufl.edu/judicial/procedures/academicguide.php).

Cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.

*We, the members of the University of Florida community,
pledge to hold ourselves and our peers to the
highest standards of honesty and integrity.*

Accommodations for Students with Disabilities

The College and the course instructor are committed to providing reasonable accommodations to assist students’ coursework. To obtain academic accommodations, first register with the Dean of Students’ Office. The Dean of Students’ Office will provide documentation to be given to the course instructor at the time you request the accommodation.

Online Course Evaluations

Course evaluations are conducted online. “Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu>.

Counseling and Student Health

Students may occasionally have personal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing

problems affecting your coursework, you are encouraged to talk with an instructor and to seek confidential assistance at the University of Florida Counseling Center, 352-392-1575, or Student Mental Health Services, 352-392-1171. Visit their web sites for more information:

<http://www.counsel.ufl.edu>. The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services, including primary care, women's health care, immunizations, mental health care, and pharmacy services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: www.health.ufl.edu/shcc

Crisis intervention is always available 24/7 from:
Alachua County Crisis Center: (352) 264-6789

Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.