

## SYLLABUS

PHR 362L  
SPR 2009 (Unique No. 60925)  
MWF 8:00 AM, PHR 2.114

**CLINICAL TOXICOLOGY**  
Course Supervisor -- Alan Combs  
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GENERAL COMMENTS: This syllabus lists the topics that will be taught, and it lists the examinations and other course requirements. There will be two exams, homework, and your choice between a term paper, a panel, or a project. Each will be weighed equally in the final grade. The particular rules and restrictions applying to each are shown in this syllabus. **Handouts and class materials also will be used during the semester. Generally, these will be passed out in class, or made available via electronic reserves.**

- I. GENERAL PRINCIPLES: The General Principles section will have the following approximate outline.

General Principles of Toxicological Evaluation:

- A. Definitions; types of toxicity
- B. The "Classical Principles of Toxicology"
  - 1. Chronicity of exposure.
  - 2. Threshold (dose-threshold) for response.
  - 3. Dose that gives maximal response.
  - 4. Region of dose dependency.
- C. Where the classical principles may not be applicable.
- D. Trans-scientific questions.
- E. Toxicological testing.
  - 1. Risk vs. benefit.
  - 2. Experimental design and evaluation:
    - a. Prospective and retrospective studies.
    - b. Controls
    - c. Statistics (descriptive, inferential)
- F. Animal models as predictors of human toxicity.
- G. Legal requirements and specific screening methods.
- H. Toxic Mechanisms

- II. CURRENT TOPICS -- These current topics will be interspersed throughout the other materials and may items from the topic list on the next page and will include the following traditional topics:  
Inhalation Toxicology (Cyanide, Carbon Monoxide, Asbestos, etc.; taught by Dr. Kehrer)  
Carcinogenesis  
Heavy Metals

- III. CLINICAL TOXICOLOGY: The Clinical Toxicology section will have the following outline:

- A. Introduction (Under the sink and out in the garage).
- B. Considerations in an acute poisoning episode:
  - 1. Get demographic information from the patient (Name, PHONE NUMBER, etc.)
  - 2. Identification of toxicant.
  - 3. Emesis (current de-emphasis on gut decontamination)
  - 4. Local antidotes -- Activated Charcoal and others
  - 5. Transportation and medical attention?
  - 6. Symptomatic and supportive treatment (always done)?
  - 7. Specific antidote available and indicated (State Board trivia)?
  - 8. Hasten Elimination of toxicant?
- C. Practice with little case studies.

- IV. SCHEDULE:  
See accompanying sheet

TEXTBOOK: Readings and questions will be assigned from the literature and readings. Some will be handed out and others will be available on Blackboard.

Grading Basis:

One Exams at 100 points	-- 100 points
Term paper or project	-- 100 points (one must be completed)
Total:	-- 200 points

(A -- over 90%; B -- 80-89%; C -- 70-79%; D -- 65-69%; F -- Below 65%)

CURRENT TOXICOLOGICAL CONCERNS

These or any other legitimate toxicological topics are potential choices for term papers or panel presentations. We will touch on many of these during the semester.

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| 1. Drugs for Type II diabetes            | 22. Toxic Shock Syndrome                                 |
| 2. Toxicology and drug ads to the public | 23. Tardive dyskinesias                                  |
| 3. Artificial sweeteners                 | 24. Drug-induced photosensitization                      |
| 4. Salmonella in our foods-              | 25. Silastic augmentation (better living thru chemistry) |
| 5. Dioxin and Ecohysteria???             | 26. Steroid abuse, HRT, growth hormone                   |
| 6. Bruce Ames and Ames testing           | 27. Alzheimer's and antipsychotics                       |
| 7. Safety/efficacy of herbal remedies    | 28. Vioxx and other COX-2 inhibitors                     |
| 8. Chlorinated hydrocarbons and such     | 29. Cytokine storm in Great Britain                      |
| 9. 911 and toxicity in first responders  | 30. Ricin and common Texas plants                        |
| 10. Frankenfood                          | 31. Sudden death syndromes                               |
| 11. Estrogen, OC's, carcinogenesis       | 32. Spray paint & glue inhalation                        |
| 12. Environmental estrogens              | 33. Travails of the FDA                                  |
| 13. Estrogen, OC's, TED                  | 34. Substance abuse                                      |
| 14. Tobacco                              | 35. Cancer geography                                     |
| 15. Is <u>grass</u> any greener?         | 36. Heavy metals   |
| 16. The Chinese Melamine Saga            | 37. Fluoridation   |
| 17. Human teratogenesis                  | 38. Adverse effects of continuous stress                 |
| 18. What's toxic to dogs/cats            | 39. Antidepressants and suicide (current events)         |
| 19. Toxic psychosis                      | 40. Asbestos abatement                                   |
| 20. Texas/Mexico border anencephaly      | 41. Radon; ionizing radiation; space exploration         |
| 21. Statin Utility vs. Safety            | 42. +++ ??? (Pick your poison.)                          |

**GRADING CRITERIA** (grade thresholds shown previously):

- Exams -- these will be graded on a percentage basis.
- Paper or Project (One of these must be accomplished to complete the course):
  - Term Papers. These can be written about any toxicological topic of interest to the student. The list of current concerns gives several possibilities. If you have any questions about the suitability of a topic, check with Dr. Combs. The format and reference style should be according that of a review article in the Toxicology and Applied Pharmacology. The paper should be five (5) pages or longer in length and should be typewritten. Fifty percent of the grade will be based on adherence to the format, English, etc., and fifty percent will be based on the toxicological content. The following scale will apply to each of the two sections of the paper grade:
    - 46 - 50% -- Excellent and outstanding effort.
    - 41 - 45% -- An acceptable piece of work.
    - 40% or less -- A not so acceptable piece of work.

