

**Syllabus
Zoology 533
Aquatic Toxicology**

Professor: Michael Lydy

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Office Hours: By Appointment

Texts: Fundamentals of Aquatic Toxicology, 2nd edition, Gary Rand

The major objectives of this course are to introduce students to the diverse array of tests that are currently being required by environmental laws, and provide hands-on experience with these techniques through the use of lab exercises.

<u>Week #</u>	<u>Lecture Topics</u>
1-2	Introduction, Environmental laws, GLP (Chapters 1, 11, 21, 22, 24) <i>LAB1</i>
	Toxicity Testing
3-5	Introduction to toxicity testing (Chapters 1,2,3, appendix A) <i>Lab2</i>
6	Chronic & early life cycle tests, Algal tests (Appendix B, Chapter 4)
7	Sediment Testing and Bioavailability (Chapter 8)
8-9	Factors affecting toxicity & mixtures (Chapters 1, 17, Appendix C) <i>Lab 3</i>
10	Exam 1
	Bioacummulation Testing
11-13	Fate of chemicals in the organism (Chapters 1, 16, 17) <i>Lab 4</i>
14-15	Toxicokinetics and Toxicodynamics (Chapters 1, 16, Appendix D) <i>Lab 5</i>
16	Critical Body Residues, Incipient Lethal Levels, Equilibrium Partitioning Theory (Chapters 1, 18)
17	COMPREHENSIVE FINAL

Lab #	Lab Topics
1	Good Laboratory Practices (no lab report due)
2	Acute Toxicity Test
3	Synergistic Toxicity (carbaryl, parathion PBO)
4	Lipid Analyses - Fish
5	Toxicokinetics - BCF determination

COURSE METHODOLOGY

There will be two exams given during the semester; a midterm and a comprehensive final. Each examination will consist of questions taken from lecture material, from laboratory experiences and assigned readings from your text and from the literature. Exams will be a combination of definitions, problems and short essay questions. If needed, a makeup exam will be offered, however different test items and format from the original exam will be used.

The remaining portion of your grade will be determined from your lab work and class presentation. Five labs will be performed during the assigned lab times, with additional time required for completion of many of the labs. A short (10 page or less) typed report is due one week after the completion of the lab. The format of these reports is as follows: Title, objectives, analysis and discussion (see example). Lab reports will be graded on proper format, timeliness (25 % of the grade will be deducted each day late) and correct analysis and interpretation. In addition, lab notebooks must be kept throughout the semester. Periodic checks on the lab notebooks will be completed throughout the semester. Lab notebooks will be graded on proper format, timeliness and adherence to Good Laboratory Practices (GLP) standards. The percentages for exams and lab reports for students taking the class are as follows:

Exam 1 =	25 %
Final Exam =	25 %
Lab reports =	30 %
Lab notebooks =	10 %
Class participation =	10 %
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Total =	100 %

The following grading scale will be used:

- A = 90-100 %
- B = 80-90 %
- C = 70-80 %
- D = 60-70 %
- F = Below 60 %