

CHEM 4910
Seminar: Analytical Toxicology
Course Syllabus -Fall 2007

General Information

Instructor: Dr. David L. von Minden
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Office Hours:
MWF 9-11 AM
Also by appointment

- ▶ Students wishing to change enrollment status from credit to audit need to sign an activity agreement with the instructor before November 2, 2007.
- ▶ The last day to drop this class is November 2, 2007.
- ▶ Instances of academic dishonesty will be handled in accordance with the procedures explained in the UCO Student Handbook.
- ▶ The University of Central Oklahoma complies with Section 504 of the Rehabilitation Act of 1973 and the American with Disabilities Act of 1990. Students with disabilities who need special accommodations must make their requests by contacting the Coordinator of Disability Support Services (DDS), Ms. Kimberly Fields at (405) 974-2549. The DSS Office is located in the Nigh University Center, Room 415. Students should also notify the instructor of special accommodation needs by the end of the first week of class.

Course Description

This course is a comprehensive study of the scientific principles and techniques, which comprise modern analytical toxicology. Emphasis is placed on modern instrumental techniques used in the toxicological analysis of biological specimens.

Prerequisites

CHEM 3454 Fundamentals of Instrumental Analysis or concurrent enrollment.

Course Objectives

This course provides the theoretical basis, practical skills, interpretation, and protocols of analytical toxicology. Specific objectives are:

1. To provide a knowledge of the theoretical basis, practical skills, interpretation, and protocols of analytical toxicology.
2. To develop skills in screening techniques used in drug identification.
3. To develop skills in forensic sample separation techniques.
4. To develop proficiency in the use of confirmatory techniques used for drug samples and other crime scene samples.
5. To provide a knowledge of the principles of analysis for heavy metals and volatile compounds.

Course Outline

1. Sample screening, including immunoassays and other presumptive tests.
2. Separation techniques including solid and liquid phase extraction, supercritical fluid extraction and gas and liquid chromatographic techniques.
3. Confirmatory tests including gas chromatography/mass spectrometry and other chemical analyses.
4. Methods of analysis of volatiles and heavy metals.
5. Interpretation of results from analysis of toxic substances (volatiles, drugs, and heavy metals).

Course Requirements and Evaluation

Exams (2)	300 points
Presentation	150 points
Laboratory Reports (3)	300 points
Research Paper	150 points
Comprehensive Final Exam	100 points

Grades: The standard percentage cutoffs (i.e., 90% = A; 80% = B; 70% = C, etc) will be used to determine your final grade.

TEXT and OTHER RESOURCE MATERIAL:

Text

B. Levine, Ed., *Principles of Forensic Toxicology*, American Association for Clinical Chemistry, Inc., 2nd Edition (updated), 2007.

Resource Material

C. Klassen, Ed., *Casarett & Doull's Toxicology, The basic Science of Poisons*, McGraw-Hill Companies, Inc., New Yourk, NY, 1996.

R. Cravey and R. Baselt, Ed, *Introduction to Forensic Toxicology*, Bimodal Publications, Davis, CA, 1981.

T. Mills III, J.C. Roberson, W. Way, K.L. Lothridge, *Instrumental Data for Drug Analysis*, vols. 1-6.

Laboratory Exercises

Each Laboratory exercise will involve laboratory handouts developed by the instructor as there is no lab manual commercially available for this specialized course.

Reference Material

Saferstein, R., Ed., *Forensic Science Handbook*, Vol. 1, Prentice-Hall, 1982, Vol. 2, 1988; Vol. 3, 1993.

Leiken, J.B. and Paloucek, F.P. Ed., *Poisoning and Toxicology Handbook*, 2nd ed, Lexi-Comp Inc., 1996.

ATTENDANCE POLICY:

It is expected that students will attend all scheduled lectures tabs. While no penalty will be assigned for missing the class/discussion part of the class, there is a strong correlation between success in the class and good attendance. You must attend the lab when scheduled and on time. There will be no makeup lab work unless the instructor has granted prior permission. Hour exams missed because of an excused absence will be given the same score as that obtained on the final comprehensive exam. Students missing the final exam because of an excused absence will receive an incomplete, which must be made up within the time allowed by the University.

ACADEMIC DISHONESTY POLICY:

Honesty in performing experiments, acquisition of data, and interpreting and reporting results is extremely important to the scientific community. Plagiarism or the use of other workers data or results and presenting them as ones own work is a blatant act of academic dishonesty. Students found guilty of plagiarism or cheating on quizzes and tests will be penalized in accordance with the University policy which may include dismissal from the class with an F grade or dismissal from the University.