

LOYOLA UNIVERSITY OF CHICAGO

Forensic Toxicology

Fall Semester 2012

Course Number: CHEM 395-004 **Class Number:** 5655 **Class Limit:** 28

Tuesday: 7:00 to 9:20 p.m. **Room:** Information Commons, Room 105

Instructor: A. Karl Larsen, Jr., Ph.D. **University email address:** klarsen@luc.edu

Office Hours: Tuesday, 5:00 to 6:30 p.m. **Office:** LSB 243 **Office Phone:**

Course Description and Rationale: This course stresses the practical and theoretical aspects to forensic toxicology, the study of drugs and their implications in a forensic setting when toxicity sets in. The course presents case studies where the applications of drug use may become a forensic matter. The class will also stress written and spoken communication of the complex language used in the analysis and description of drugs, their effects and the crimes associated with them.

Critical thinking skills, as well as problem solving skills, are essential in all areas of study. This course will aid in helping students develop these essential skills and provide them with the basic knowledge of the problems which are faced in the scientific laboratory in every day life. Critical thinking is often a part of decision making which will contribute to the actions taken in the laboratory. Many of these actions are positive, but if a wrong decision is made, it can have detrimental effects on an individual or a whole laboratory.

The intense coverage of such cases as the O. J. Simpson trial, which included a great deal of forensic evidence and testing certainly brings to the general public crime scene searches and investigations. That case brought forensic science into the public eye. The Houston laboratory suffered a great loss of respect when it was found that neglect had not been remedied and casework suffered. Ethical problems were also found which contributed to the casework discrepancies noted.

Course Objectives: Students should develop basic scientific literacy, understanding of the scientific method of inquiry, understanding ethical thought and application of ethics to the field of forensic science. Breakdown of this thought and application will be the major part of course discussion and should be demonstrated in the written assignments. They will hopefully appreciate the impact of ethics on society, their laboratory and their reputation. Upon completion of this course, the student should:

1. Understand the basic concepts of ethics and ethical thought and professional behavior in forensic science and its application to Forensic Toxicology,
2. Understand how an ethical breach can be handled in the media, and how the breach can have lasting effects not only on the scientist, but the laboratory they work for and the criminal justice system.
3. Use writing skills to put into clear concise print this difficult subject.
4. Understand the importance and wide applicability of scientific methodology and ethics to problems in all areas of their lives.
5. Understand the professional obligations of being involved in Forensic Toxicology.

Office Hours: The instructor will be available before class in room 549B of Damen Hall for any students needing assistance with research or class assignments. In case of emergency, the instructor may be reached through the email address listed above. Response will generally be within 24 hours.

Course Text: Clarke's Analytical Forensic Toxicology; Sue Jickells and Adam Negrusz, ed.; Pharmaceutical Press; 2008; ISBN 978-0-85369-705-3

COURSE POLICIES:

Attendance: Students are responsible for all materials and homework assignments for classes missed.

Homework Assignments: The only homework assignments will be the presentation and paper. The requirements are described below.

Student Responsibilities: Students are responsible for being punctual to class, completing all assignments on time, reading assigned materials before class and participating in class discussions.

Written Assignments: All written assignments will be typed and double spaced. The font size will be either 10 or 12. The written assignment will be submitted in hard copy form. **Email or disc submission will not be accepted. Papers are penalized 1 point per day they are late.**

Grading System:	Midterm Examination	30 points
	Final Examination	30 points
	Presentation & Paper	30 points
	Class Participation	10 points
	<hr/>	
	Total	100 points

Final Grade: This will be consistent with the Grading Policy of Loyola University:

A = 100-94	A- = 93- 91	
B+ = 90-88	B = 87-85	B- = 84-82
C+ = 81-79	C = 78-76	C- = 75-73
D+ = 72-70	D = 69-67	D- = 66-64
F <= 63		

Examinations: Examinations will be multiple choice and short answer. The midterm will include all information, except the drug monographs through week 7. The final examination will only be on material presented after the midterm examination. It will not be cumulative.

Presentation and Paper: This presentation is the Drug Monograph. Each student will be responsible for instructing the class about one drug of abuse. The presentation will include information about history of the drug, present day use, scheduling, pharmacokinetics, pharmacodynamics and additional information which is important about this particular drug. The presentation will be 5-7 minutes in length with a short question and answer period. You may use visual aids such as PowerPoint to assist you. Part of the class participation grade will be based on questions from students during these presentations. Grading guidelines are at the end of the syllabus. The paper will be 4-5 pages in length and will be graded using the following criteria:

Research dealing with the topic assigned	70%
Sufficient material for the paper	10%
Application of the topic to forensics	10%
Grammar and spelling	10%

TOPICS TO BE INCLUDED IN THE COURSE

<u>Class</u>	<u>Date</u>	<u>Rem:</u>	<u>Topic</u>	<u>Pages</u>
1	08/28/12		Introductions and Course Expectations	
2	09/04/12	Chapter 1	Introduction to Forensic Toxicology	
3	09/11/12	Chapter 2	Pharmacokinetics and Metabolism	
4	09/18/12	Chapter 3	Drugs of Abuse	
5	09/25/12		Drug Monographs	
6	10/02/12	Chapter 4	Other Substances Encountered in Clinical and Forensic Toxicology	
7	10/09/12		Break	
8	10/16/12	Mid Term Examination		
9	10/23/12	Chapter 5	Workplace Drug Testing	
10	10/30/12	Chapter 6 Chapter 12	Alternative Specimens Solid Dosage Forms ID	
11	11/06/12	Chapter 7	Postmortem Toxicology	
12	11/13/12	Chapter 10	Drug-facilitated Sexual Assault	
13	11/20/12	Chapter 11	Alcohol, Drugs and Driving	
14	11/27/12	Selections from Chapters 13-21	Analysis of Toxicology Samples	
15	12/04/12	Chapter 23	Quality Control and Assessment	
16	12/11/12	Final Examination		

Guidelines for Grading of Drug Monograph

Name of Student: _____

Points	2	3	4	5	
Organization	Audience can not understand presentation because there is no sequence in the information	Audience has difficulty following presentation because the presentation jumps around in time sequence	Information presented in logical sequence which audience can easily follow	Information presented in logical sequence and in interesting manner which audience can follow and enjoy	
Content	Presentation does not show grasp of topic	Presentation does not address two or more issues	Presentation does not address one issue	Presentation demonstrates full knowledge of the issues and topic	
Graphics	Presentation has too many superfluous graphics or no graphics	Presentation has graphics but they don't support the presentation	Presentation graphics relate to presentation	Presentation graphics relate to presentation and help explain and reinforce the presentation	
Mechanics	Presentation has four (4) or more errors	Presentation has three (3) errors	Presentation has no more than two (2) errors	Presentation is error free	
Style	Presenter reads presentation to audience	Presenter reads most of presentation	Presenter gives information referring to notes only occasionally	Well rehearsed presentation with very little use of notes	
Engagement	Audience not engaged, presenter mumbles, speaks too quietly, goes to fast	Some members of audience engaged	Most of audience engaged, clear well paced presentation	VERY WELL DONE!!!	

Issues to cover in presentation:

1. History of the drug and its use
2. Scheduling of the drug including why, when, penalties, and in which schedule
3. Pharmacokinetics of the drug in humans
4. Expected effects of the drug
5. Drug toxicity
6. Street names and dosages
7. Additional drug specific information