Introduction to Forensic Drug Chemistry

Forensic Science Program
Loyola University of Chicago

Course Title:	Introduction to Forensic Drug Chemistry Analysis	
Document Date:	January 12, 2015	
Course Number:	Chem 316-01W	Chem 316L-01W
Section Number:	5341	5342
Credits:	3 credits	1 credit
Designation:	Lecture	Lab
Meeting Day(s) and Time:	We 4:15pm-6:45pm	7:00pm-9:30pm
Meeting Location:	Flanner Rm 7	Flanner Rm 313

Instructor:	Richard A. Paulas, M.S.
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Departmental Fax:	(773) 508-3086	773-508-3646
Availability:	by appointment	

Required Text Book: No textbook required. Materials will be assigned from the internet.

Other required materials: Internet Access
Recommended supplemental texts: TBA
Course Instructional Fees: $$$-Lab

Course Description: Course provides an introduction to the basic principles and uses of forensic drug analysis. The basic applications of the biological, physical, chemical, medical, and behavioral sciences currently practiced and limitations of the modern crime laboratory are presented.

Course Rationale: This course satisfies partial credit toward the BS in Forensic Science major. This course introduces the basic principles and uses of forensic science as it relates to drug chemistry analysis. The course presents the basic applications of the biological, chemical, physical, medical currently practiced and the limitations of the modern crime laboratory. Critical thinking skills, as well as problem solving skills, are essential in all areas of study. Scientific investigation in the scientific method in action. This course will aid in helping students develop these essential skills and provide them with the basic knowledge of science, that they may become productive citizens.

Prerequisites: CHEM 222/224 and CHEM 212/214 Co-requisite CHEM 316L
Other Recommended Courses: FRSC 381 and FRSC/CRMJ 382

General Science Objective: Students will develop basic scientific literacy, understand the scientific method of inquiry and appreciate the impact of science on society.

Learning Outcomes: 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. This course makes science relevant and pertinent to the interests and goals of those students who desire to learn more about forensic science as it applies to forensic drug analysis, which is often part of cases reported in the mass media. The techniques, skills, advances and limitations of the modern forensic laboratory are presented. Students should have some prior knowledge or background in the forensic sciences, and appreciate the impact of science on society.

1. Upon completion of this course, the student should understand the basic concepts of forensic drug analysis and testing reported in the media.
2. Upon completion of this course, the student should be able to gather and interpret data and form conclusions based on that data.
3. Upon completion of this course, the student should be able to understand and interpret media reports on topics similar in nature to forensic drug analysis and limitations to identifications, and the application of this aspect of science to legal matters.
4. Upon completion of this course, the student should be able to use logical and critical thinking skills in problem solving in this and other areas of study, and to effectively communicate the skills to non-scientific personnel.
5. Upon completion of this course, the student should be able to understand the importance and wide applicability of scientific methodology to problems in all areas of their lives.

Grading and Evaluation: Your final grade will be assigned using the scale below:

A-	90 to 92	A	93 to 100		
B-	80 to 82	B	83 to 86	B+	87-89
C-	70 to 72	C	73-76	C+	77 to 79
		D	60 to 69		
		F	0-59		

Grading System:

In-class Writing Assignment	10 points each	50 points
Writing Assignments		150 points
Mid-term		100 points
Final Examination		100 points
Total		400 points

Laboratory Experiments: These will be short Lab exercises demonstrating the concepts discussed in class. They will be presented to the class at the beginning of the assigned class period.

Writing Assignments: There will be both in class and take home writing assignments. The in class assignments will be based on the previously covered material and will serve to demonstrate an understanding of material presented. These will be graded and returned. The Writing assignments will demonstrate a greater knowledge of the material presented and researched, allowing you to form conclusions based upon your reading clear understanding of the concepts of the material covered. These will also be graded and critiqued. These assignments will grow longer and more involved as the course continues, allowing you to utilized the previously written material as a stepping off point for further and more intense discussions.

Attendance: Departmental Policy on attendance applies. Students are responsible for being punctual to class, completing all assignments on time, reading assigned materials before class and participating in class discussions.

Make-up Work: There are no make-up dates for in class written assignments. Take home written assignments must be handed in on time, or suffer loss of points at 10% per day late. There are NO make-up periods for laboratories

Academic Integrity: Students at Loyola University enjoy significant freedom of artistic expression and are encouraged to stretch their scholarly and artistic boundaries. However, the college prohibits all forms of academic dishonesty. For present purposes, "academic dishonesty" is understood as the appropriation and representation of another's work as one's own, whether such appropriation includes all or part of the other's work or whether it comprises all or part of what is represented as one's own work (plagiarism). Appropriate citation avoids this form of dishonesty. In addition, "academic dishonesty" includes cheating in any form, the falsification of academic documents, or the falsification of works or references for use in class or other academic circumstances. When such dishonesty is discovered, the consequences to the student can be severe.

Disclaimer Statement: This syllabus may be amended as the course proceeds. You will be notified of all changes.

Writing Intensive Courses differ from non-writing courses because the classroom focuses not only on course content but also on written communication skills. In the courtroom, these skills can improve the ability of the witness to verbally communicate the analysis performed. Each in-class assignment will stress the conceptual knowledge of the previously discussed material, but will also evaluate the principles of good writing, organization, and correctness. The Writing Assignments(WA) will be more involved to include development, clarity, directness, structure, limiting excess, and of course, proper grammar and punctuation.. The evaluation criteria for each WA will be made clear and discussed before the assignment is made. If students need additional help in this area, they should contact the Writing Center for assistance.

Sakai: I try to use Sakai as much as possible, but I am still getting used to it. I will try to post lessons and assignments, as well as copies of lecture materials and reading assignments at least one week prior to the lesson. Assignments and grades will also be posted. It is imperative that we use the LUC e-mail for correspondence. This will be the most efficient method of communicating because we are physically only meeting one day/week. All of the assignments and lessons will be described in the **Chem 316-01W** course**.** I have also included both the lecture and lab sequences on this syllabus in order to keep everything together. I will try to update the calendar on Sakai, but I have usually failed to effectively keep it as current as it should be. So use this as the most useful calendar, and if (when) there are changes, you will be properly notified.

TOPICS TO BE INCLUDED IN THE COURSE

Class	Date	Topic	Writing Assignments due
1	01/14/15	Introductions, Preliminary Writing Assignment Lab0-Safety (Virtual Assignment)	Virtual Meeting via Goto Meeting 6pm
2	01/21/15	Lecture- Cannabis Lab1- Microscopic Identification	Prel. Writing Assignment due
3	01/28/15	Lecture-Drugs of Abuse Lab2-Chemical Color Test	
4	02/04/15	Lecture-Measurement Uncertainty Lab 3-Balance Calibration/MU	WA. 1 due- Cannabis identification
5	02/11/15	In Class Writing Assignment A-Measurement Uncertainty Lecture-Controlled Substances/Physical ID Lab-4-Physical Identification	
6	02/18/15	In Class Writing Assignment- Physical ID Lecture- Controlled Substances Act/Color Tests Lab5-Chemical Color tests	
7	02/25/15	-Mid-term examination Lab- No lab	WA2 –due-Controlled Substances
8	03/04/15	Spring Break	
9	03/11/15	Lecture-Vis/UV Spectrophotometry/Polarimetry Lab-6-VIS/UV	
10	03/18/15	In Class Writing Assignment C- Vis/UV Spectrometry Lecture- Chromatography - Lab-7-TLC	
11	03/25/15	In-Class Writing Assignment D- TLC Lecture- Gas Chromatography Lab8- Virtual GC	
12	04/01/15	Lecture- Extractions Lab9-Extractions-1	WA3- GC Chromatography Quiz and Assignment
13	04/08/15	In-Class Writing Assignment E- Extractions Lecture- FT/IR Lab10-Extractions-2	
14	04/15/15	Lecture- Mass Spectrometry Lab-11-Intrument prep	WA4-FT/IR Explanation (4 pages)
15	04/22/15	Lecture- Final Exam review Lab-Cleanup-closeout	
16	04/29/15	Final Examination	WA5- Drug Monograph

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WA- Writing Assignments- These will vary in length:	WA 1,2	2-3 pages	20 pts each	40 points
	WA 3,4	4- pages	30 pts each	60 points
	WA 5	7-12 pages	50 pts each	50 points
			Total	150 points