

Forensic Science – CHEM 106
Spring Semester 2008

MWF 10:45 – 11:40 SC 282

Instructor: Dr. Douglas Beussman

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Objectives: This course will introduce the fundamentals of forensic science. Lectures will focus on how samples are collected and analyzed and what information can be obtained. Actual case studies will be used to supplement lectures. Topics covered will include hair analysis, paint analysis, drug screening, arson investigation, ballistics, DNA analysis, and fingerprint analysis.

Prerequisites: None

Course web page: The URL for CHEM 106 web page is:

[http:// www.stolaf.edu/people/beussmad/Chem106/](http://www.stolaf.edu/people/beussmad/Chem106/)

Grading: Grades will be assigned based on a straight scale from the results of eight problem sets, three regular exams, and one comprehensive final exam.

Exam 1	100 points
Exam 2	100 points
Exam 3	100 points
Problem Sets (8)	200 points total
Final Exam	<u>150 points</u>
TOTAL	650 points

Grades

>90%	A	(A+/A/A-)
>80%	B	(B+/B/B-)
>70%	C	(C+/C/C-)
>60%	D	(D+/D/D-)

Problem Sets: Eight problem sets will be given throughout the semester. Homework should be turned in during class, but will be accepted until 5:00 PM in SC 328. *Any homework turned in after 5:00 PM the day it is due will not be graded, unless previous arrangements have been made with the instructor.* Students are allowed to work on the problems as a group, but each student must turn in their own work. Handing in photocopied or hand-copied answers constitutes academic dishonesty.

Exams: All exams will be closed book and closed notes. No make-up exams will be given unless prior arrangements have been made with the instructor (discussion of scheduled absence prior to exam, phone or email message if ill, etc.). Unless otherwise announced, calculators will be allowed, however, the use of programmable calculators to store information of any sort (definitions, equations, etc.) will constitute cheating and will be handled as described below. Calculators are subject to examination at any time. After graded exams are returned, students will have one week to turn exams in to be regraded. The reason for the regrade must be given in writing.

Textbook: *Criminalistics: An Introduction to Forensic Science, Ninth Edition*
Richard Saferstein

Lecture Number	Date	Topic	Reading	HW Due
1	2/8	Introduction	4-26	
2	2/11	Crime Scene	38-57	
3	2/13	Physical Evidence	70-86	
4	2/15	Glass and Soil Analysis	100-124	1
5	2/18	Molecular Structure, Energy Levels	Handouts	
6	2/20	Organic Compounds	Handouts	
7	2/22	Polarity, Acid-Base Chemistry	Handouts	2
8	2/25	Organic Analysis – Separations	128-144	
9	2/27	Organic Analysis – UV/Vis, IR Spectroscopy	144-150, 169-171	
10	2/29	Organic Analysis – Mass Spectrometry	150-155	3
11	3/3	Inorganic Analysis, Atomic Absorption	160-169	
12	3/5	Hair Analysis	208-219	
	3/7	EXAM		
13	3/10	Fiber Analysis	219-232, 87-97	
14	3/12	Paint Analysis	232-243	
15	3/14	Drug Classes	248-268	4
16	3/17	Drug Analysis	268-275	
17	3/19	Toxicology – Alcohol	280-297	
	3/21	BREAK		
	3/24	BREAK		
	3/26	BREAK		
	3/28	BREAK		
18	3/31	Toxicology	297-307, 29-35	
19	4/2	Serology – Blood Analysis	346-358	5
20	4/4	Serology – Blood Patterns, Heredity	359-377	

21	4/7	DNA basics	382-390	
22	4/9	DNA Typing	390-410	
	4/11	EXAM		
23	4/14	DNA – Collection, CODIS	410-418	
24	4/16	Time Since Death – Body Stages	Handouts	6
25	4/18	Time Since Death – Entomology	Handouts	
26	4/21	Arson	312-326	
27	4/23	Explosives	327-340	
28	4/25	Fingerprints – Basics	428-440	
29	4/28	Fingerprints – Detection	440-455	
30	4/30	Ballistics	460-471	7
31	5/2	Gun Powder Analysis	471-481	
32	5/5	Tool Marks/Impressions	481-493, 198-205	
33	5/7	Document Analysis	498-514	
	5/9	EXAM		
34	5/12	Voice Analysis	515-520	8
35	5/14	Review		
	5/16	FINAL EXAM		

Instructor reserves the right to make changes throughout the semester as needed.