

CHEM299: CHEMISTRY, CRIME and SOCIETY
A Writing-Intensive Second Year Seminar Course
Meets MWF 8:00-8:50, SCI206
Fall 2008 Syllabus



Image 1 (fingerprint) available at <http://www.portarthurpd.com/detectives.html>

Image 2 available at http://www.epa.gov/sab/sge_course/15ex.htm

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Course description: Why are physical and chemical changes important in the preservation of forensic evidence? Why is molecular shape essential to the understanding of drug action and in drug identification? These are just two of many questions that will be answered in this seminar course. Students will learn the fundamental concepts of chemistry and their importance in the investigation and solving of crimes in the global society.

Text: Colin Baird, "Chemistry in Your Life". 2nd ed., (ISBN 0-7167-7042-3) New York: W.H. Freeman, 2006.

Course requirements and grading system:

Your final grade for the course will be based on the following requirements:

Exams (3, including final)	30 %
Homework and quizzes	25 %
Short writing assignments	20 %
Paper and presentation (group work)	15 %
Class participation and Attendance	10 %

Course requirements (Cont.)

Your course grade will be assigned at the end of the semester, based *roughly* on the following scale: A's (90+), B's (80-89), C's (70-79), D's (60-69), F (<60). Each exam will be assigned a numerical raw score that will not be curved. There is no reason not to cooperate with other students in the learning process, as the success of other students in the class does not diminish your own work (i.e., everyone can get an "A").

Exams: There will be three exams: 2 hourly and a final. Each will be a combination of multiple choice questions, identification, and discussion. The exams will be based on lecture discussions and writing assignments.

Homework/Quizzes: Homework and quizzes will be given on a regular basis in order to help you retain the materials covered in class and also to prepare you for the exams. Homework questions will cover current or future lecture topics and are mostly based on chemistry concepts, not crime cases. Quizzes will be based on concepts that were currently discussed in the lecture.

Writing Assignments: Writing assignments will be based on crime cases or chemistry concepts and may be required *in class* or *outside of class*. They will be evaluated based on content, writing style and grammar.

Paper and Presentation: Each group of 2-3 students will be required to write a paper after the midterm exam. The topic will either be assigned or your group's choice subject to approval by your professor. Topics will be restricted to crime cases that you will analyze in your paper. A draft of your work will be collected approximately two weeks after the topic has been assigned or approved. Finally, a PowerPoint presentation of your paper will be required at the same time the paper is due.

Plagiarism and/or *copying* each other's work will not be tolerated and will be treated according to the college's policy as stated in the section "Academic Integrity" below. Refer to the catalog for more information on plagiarism and other forms of cheating.

Attendance/Class Participation: Attendance and participation in class discussions are a part of the course requirements. Discussions will be based on current lecture topics or case readings (writing assignments).

Teaching objectives

It is not my goal to turn you into a "private eye" in this course. My major goal is to provide you with scientific knowledge, focusing on chemical principles, needed to better understand the process of crime investigation. Someday some, if not all, of you will be called for jury duty and you might be deciding on a crime case. A good understanding of the validity of evidence presented often requires a good understanding of the scientific principle governing the collection, handling, preservation and analysis of such evidence. The process involved in solving crime is much more complicated than what you see in the popular TV series CSI (and other shows like Cold Case, NCIS, and the like).

Academic Integrity

Below is an excerpt from the college catalog (<http://www.bridgew.edu/Catalog/ugpol.pdf>).

“At Bridgewater State College, academic honesty is expected of all students; plagiarism and cheating are not condoned and are subject to academic penalty, which may result in a failure for the course in which the violation took place. A violation may result in a reduced grade, suspension, or dismissal from the college. Academic misconduct includes, but is not limited to, plagiarism, cheating, and dishonest practices.”

For more information on plagiarism, including information on citing internet and other sources, go to <http://webhost.bridgew.edu/j1kagan/PlagiarismWQ.htm>

Classroom Conduct

Disruptive behavior will not be tolerated in my classroom and will be treated according to the college’s Classroom Conduct Policy as stated below:

“If disruptive behavior occurs, whether in the classroom or another academic environment, a faculty member has the right to remove the student from the classroom setting. Examples of potentially disruptive behavior may include, but are not limited to, using derogatory, vulgar, and insulting language directed at an individual or group, unsolicited talking in class, sleeping in class, using or activating cell phones, arriving at or leaving the classroom while class is in session, and/or failing to comply with the legitimate request of a College faculty member. If a student exhibits disruptive behavior, the faculty member may ask the student to stop the behavior. If the student does not comply with the professor’s request, he or she will be asked to leave and the professor will indicate the expected appropriate conduct to be able to return to class.” (<http://www.bridgew.edu/Catalog/ugpol.pdf>)

Tentative schedule

<u>Week #</u>	<u>Topic</u>
1	<i>Introduction to Chemistry</i> (Chapter 1) and <i>Forensic Science</i>
2	<i>New Identities? Physical and Chemical Change</i> (Chapter 2 –Sections 1-10) Case Study: John Gotti Murder
3	<i>The Internal Workings of Atoms</i> (Chapter 3 – 1 st part on Atomic Structure) Case Study: The Marsh Crematorium Case Study: The Shroud of Turin
4-5	<i>The Internal Workings of Atoms</i> (Chapter 3 – 2 nd part on Chemical Bonding); Exam 1 – Wed., Oct. 1 , Weeks 1-5 topics Special topic: <i>Spectroscopic Analysis</i> Case Study: The Tylenol Scare
6-7	<i>Oxidation Reactions</i> (Chapter 2, Sections 12-18) Special Topic: <i>Gas chromatography</i> Case Study: Arson
8-9	<i>Organic compounds</i> (Focusing on <i>Alcohols</i> , parts of Chapters 4 & 6) Special topic: Alcohol metabolism and the <i>breathalyzer test</i> Case Study: Patricia Stalling Case Study: <i>The Black Widow</i> <u>Topic for paper due</u> (or will be assigned) on Friday, Oct. 24 Exam 2: Friday, October 31 – Weeks 6-9 topics
10-11	<i>The Chemistry of Medication and Clothing</i> (Chapter 8) Case study: Illicit drugs and/or Drug trafficking Draft for Paper due Wednesday, Nov. 5
12-14	<i>Nucleic Acids</i> (Focus: DNA; Chapter 9 – Sections 1-11) Case Study: DNA Analysis Paper due on Nov. 26 (W); PowerPoint Presentations – Nov. 21-26
15	Catch up; Final Exam: Fri., Dec. 12, 8-10 AM; Weeks 6-end topics

Other important dates:

Sept. 10 (W): Last day to ADD/DROP courses
Oct. 13 (M): Columbus Day (No classes)
Nov. 11 (T): Veterans' day holiday
Nov. 12 (W): Tuesday schedule; No meeting
Nov. 14 (F): Last day to withdraw from courses
Nov. 26 (W): Thanksgiving recess begins at 4 pm
Dec. 11 (R): Reading Day
Dec. 12-18: Final Exams