

NSCI 211**CHEMISTRY AND CRIME LAB****SPRING 2016**

Dr. Bettie Davis

Office: Dupre E205, 724-805-2468 (x2468 on campus)

Home: 724-834-4103 (call before 9:00 pm)

email: bdavis@stvincent.edu

Office Hours: T & TH 10-11 am

or by appointment

The laboratory exercises are designed to complement NSCI, Chemistry and Crime (the lecture component). Through completing the laboratory activities students will develop some familiarity with chemical techniques involved in evidence collection and analysis. Students will also improve their ability to discern what constitutes reliable evidence and what evidence/analytical results could be subject to question.

Course meeting time:*section 01 Tuesday, 1-4 pm; section 02 Wednesday 2-5 pm*

Both sections meet in Dupre E217

Text:

Instructor handouts

Week of	Experiment
Jan. 11-15	Introduction
Jan. 18-22	Measurement
Jan. 25-29	Physical and Chemical Properties
Feb. 1-5	Presumptive Drug Identification, Flame Test
Feb. 8-12	Stoichiometry and Titrations
Feb. 15-19	Thin Layer Chromatography Analysis
Feb. 22-26	Soil Examination
Feb.29-March 6	NO LAB - SPRING BREAK
March 7-11	Plaster Impressions
March 14-18	No Lab
March 21-23	Fingerprints
March 29- April 1	Guns, Hairs, and Fibers
April 4-8	Blood Typing and DNA
April 11-15	Blood Splatter
April 18-22	Honors Convocation (no lab)
April 25-29	Who Killed the Mayer (lab final scenario)

Goals of the course

This course is designed to fulfill the natural sciences goal in the core curriculum - "To promote understanding of the natural sciences." In particular, this course focuses on the goal that students will be able to "describe the nature of scientific knowledge, use the scientific method, and comprehend, present and critique scientific work:

More specifically, this course is designed so that upon completion you will

- 1) know how to use the scientific method and should understand the difference between the scientific method and other forms of inquiry and be able to follow the steps below to conduct an experiment at an appropriate level of difficulty:
 - a) Ask a question that can be addressed scientifically.
 - b) Formulate a testable hypothesis.
 - c) Design and perform experiments to test the hypothesis
 - d) Use sound ethical judgment in formulating an experiment.
 - e) Accurately and honestly collect and interpret data.
 - f) Process and analyze the data.
 - g) Draw conclusions from the experiment about the hypothesis.

- 2) be able to present, comprehend, and critique scientific work as demonstrated by:
 - a) be able to communicate your scientific findings to your peers in both written and oral forms.
 - b) demonstrate the proper means of citing other sources, and giving credit to co-authors.
 - c) be able to define plagiarism as it applies to the natural sciences.
 - d) be able to discern whether you have sufficient information to support your conclusions.
 - e) be able to determine the validity of the results presented if you have sufficient knowledge of the topic.

If you have a question...

My office hours are posted on my door and will be announced in class. If these are not convenient, please talk to me about other possible times. I am willing to meet with students almost anytime, but prior arrangement helps me to insure that nothing else comes up to interfere with meeting a student. In addition, you are welcome to call me in my office or at home; both phone numbers are at the top of the syllabus. My email address is also listed at the top of the syllabus.

Structure of the course

This course consists of 11 laboratory experiments and a "final laboratory scenario". During the laboratory period, you will conduct the experiment - working either in pairs or groups of four depending on the particular topic - and then discuss the results with your

neighbors. Many times we'll finish up the experiment with a whole-class discussion. You will then complete a worksheet or a "report to police/district attorney" that presents and analyzes the results of the experiment. The structure of each report will be described during the laboratory period. These written reports are due at the beginning of the next laboratory period

The final laboratory scenario requires that students put all of the skills that they have learned in lab into practice. Students will assume the role of crime scene investigators as they use their observational skills and deductive reasoning to solve a realistic crime scenario. They attempt to identify a prime suspect from a pool of 6 alleged perpetrators using traditional forensic techniques. At the end, students write a report to the District Attorney regarding who should be arrested for the crime.

Late reports will receive a five-percent penalty if they are turned in after lab and up to a week late. Lab reports that are more than a week late will not receive credit. It is your responsibility to ensure that all lab reports are legible. While I don't require that lab reports be typed, I strongly encourage you to do this. Illegible lab reports may result in your receiving a lower grade because I could not read what was written. If a student fails to turn in three lab reports, the Dean of Studies will be informed.

Notebooks

Keeping a detailed and thorough notebook is essential for understanding the process of doing chemistry. Consequently, each student is required to keep a permanent bound notebook that can be used to record experimental data. Composition books work particularly well for this purpose. Use the notebook as a note pad and a record book for all of your observations taken during the experiment.

Attendance and Safety

Attendance at all laboratory periods is mandatory. Attendance means more than simply showing up; I expect everyone to participate *actively* in the experimental process and in the discussions. Your level of active participation will be used to determine your "performance" grade (see Grading section below). If you have a legitimate absence, please present to me a written excuse from the Dean of Student's Office, Athletic Office, Health Center, etc. in order to make up the missed lab. Unexcused absences will receive a zero for that laboratory.

Good safety practice is mandatory. I will try to inform you about any safety hazards that may be present in each lab, and you must follow all safety guidelines that are given either in the handout or by me. Safety goggles are also required for each lab, unless I indicate otherwise. These lab experiments are safe and easy when conducted properly. Anyone not performing an experiment in a safe manner will be asked to leave so that others are not endangered.

Grading

You will be asked to write reports based on your data collection. Many times this will be written in a form similar to what laboratory personnel use in the real work of forensic science. Formats will be given in class to acquaint you with the process.

13 Labs worth 30 points each	390 points
13 Labs performance grade 5 points each	65 points
Final laboratory scenario	100 points
Total:	555 points

Your grade will be the total number of points received divided by the total number of points available. Grading will be determined in accordance with the grading criteria published in the College Bulletin.

Important Course Policies

Any student who withdraws from the Chemistry and Crime Lecture (NSCI 210) must also withdraw from the NSCI 211 Lab.

Saint Vincent College has an academic honesty policy, found in the current College Bulletin. Please refer to the *Bulletin* for details. Cheating or plagiarism will not be tolerated. Plagiarism is defined as the act of presenting another's original idea or product as one's own. Whenever an idea comes from another source, it must be cited.

Students with disabilities who require academic accommodations and support services should please consult Mrs. Sandy Quinlivan. You may contact her by telephone (724-805-2371), SVC email or by scheduling an appointment in Academic Affairs (located directly above the Post Office). Reasonable accommodations do not alter the essential elements of any courses, programs or activities.

In case of adverse weather, I will post an announcement on the course Blackboard site and leave a recording in my office by 8 am that day. If there is nothing on the Blackboard site **and** no message on my voicemail, then you should assume that class will be held.