

# Chemistry 298 (soon to be Chem 203) Forensic Analysis

Winter 2017

This course is intended to introduce the non-science student to the fundamentals of chemical analysis as it is used in modern forensics. It will introduce the basic concepts of the scientific method, molecules and chemical reactions but will primarily focus on chemical analysis. The key techniques used in modern forensics will be presented with applications in drug, DNA, fingerprint, explosive and combustion/arson analysis.

*NOTE: This course is intended for non-scientists and is not a prerequisite for any Chemistry or Biochemistry course. Students in programs leading to the BSc degree may take this course as an elective, but may not take this course for credit to be applied to their program of concentration. This applies, for example, to Chemistry, Biology, Ex. Sci, Psych. etc. students. Chemistry students, in particular, must be even more careful as this course may not be eligible as an elective.*

## **COURSE INSTRUCTOR:**

Professor Cameron Skinner

- Office: Science Pavillion 275-27
- Office phone: 848-2424 ext 3341  
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- Office hours any time / by appointment.

**SCHEDULED LECTURE PERIODS: Monday 6:00-8:30 PM, Hall Building (downtown) H427**

**SCHEDULED LABORATORIES: None**

**COURSE TEXT:** Forensic Science and Chemistry custom ebook, \$61, purchase an access card at the bookstore (ISBN: 132361320X) drawn from a couple of basic forensics and chemistry books.

**COURSE MATERIAL:** Moodle – should have additional slides, articles, data, FYI content etc.

**GRADING:** This is subject to some revision during the course given that this is the first offering of the course.

Assignments & quizzes/problems	Midterm	Final
30	30	40
30	20	50

**I will calculate the best grade using the above and use that to determine the final letter grade.**

In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

**EXAM PREPARATION:** quizzes will focus more on acquired information and facts whereas the midterm and final will focus more on an understanding of material rather than detailed information. This means that students should be able to explain a process/procedure/reaction or choose an appropriate process/procedure/reaction to solve a problem.

## Outline

Note, this is the intended teaching plan. Given that this is the first running of the course and we have a very diverse group of students it is subject to significant alterations as the need arises. It is critical that you let me know if you don't understand something so that I can either help you understand it or we revisit it in class for everyone's benefit.

Lesson 1: Blood alcohol analysis

Lesson 2: Fundamental principles of Forensics

Lesson 3: Fundamentals of Science

Lesson 4: Fingerprints

Lesson 5: Fundamentals of chemical analysis

Lesson 6: Toxicology and Drug Analysis

Lesson 7: Mass spectrometry

Lesson 8: DNA analysis

Lesson 9: Explosives & Gunshot residue