

# Forensic Chemistry II

FIS 40400 (01)  
Spring Course Syllabus

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**Prerequisites:** FIS 401 and 406. Open only to FIS majors or permission of instructor

**Textbook:** Bell, Suzanne. Forensic Chemistry, Pearson Prentice-Hall, Upper Saddle River, NJ, 2006. You will also need safety glasses.

## Course Description

Learn applications in the analysis of forensic chemical evidence. Topics include chromatography (thin layer, gas, liquid), mass spectrometry, spectroscopy.

## Course Content and Organization

This course will cover the major techniques used in the analysis of chemical and trace evidence commonly encountered at crime scenes. The techniques of stereo and compound light microscopy, gas, thin layer and liquid chromatography, and UV-visible and infrared spectrophotometry will be studied and used extensively. There will lecture and lab components for each of the types of evidence covered in the course.

You will work in small groups during the lab portion of this class except during the final mock case. Even though you and your partner(s) may be collecting data together, you are completely responsible for all of the lab work and the work on the lab reports must be your own.

## Course objectives

1. Demonstrate the ability to prepare and examine samples using analytical techniques such as TLC, GCMS, Pyrolysis-GC/FID, LCMS, FTIR, Raman, UV-Vis reflectance fluorescence spectroscopy
2. Determine the appropriate chemical analytical scheme to be used on physical evidence
3. Successfully apply the chemical and instrumental techniques learned in FIS 401 and FIS 406 on mock case work.
4. Describe forensic techniques used on questioned documents.
5. Explain, evaluate, and identify characteristics of fingerprints
6. Understand the application of impression evidence such as tire treads and footwear and firearm and toolmark analysis used in forensic science

### OnCourse CL

You will need to have access to the internet for this course. OnCourse CL will be used on a regular basis for upload lab materials such as pre-labs, laboratory exercises, and cover sheets for the labs. We will also post lecture handouts and power point presentations on OnCourse CL. If you have questions on using OnCourse CL please ask. We will also be using the newest version of Windows (2007). Microsoft has a patch available to download for free so that you are able to open documents in 2003 written in 2007. However, UITS has Windows 2007 available to students at no cost to download, which I would recommend.

| <b>Grading</b>             | <b>Points</b> |
|----------------------------|---------------|
| 7 Case reports @ 50 points | 350           |
| Exams @ 100 points         | 300           |
| Final: Mock case and trial | 250           |
| <b>Total</b>               | <b>900</b>    |

### Grading Scale

|               |                |                |               |                |                  |
|---------------|----------------|----------------|---------------|----------------|------------------|
| A: 100 – 93%  | A-: 92.9 – 90% | B+: 89.9 – 87% | B: 86.9 – 83% | B-: 82.9 – 80% | C+: 79.9 – 77%   |
| C: 76.9 – 73% | C-: 72.9 – 70% | D+: 69.9 – 67% | D: 66.9 – 63% | D-: 62.9 – 60% | F: less than 60% |

### Exams

There will be three exams all worth 100 points which will cover material previous to exam but after last exam. Exams will be short answer and may contain multiple choice, matching, or fill in the blank questions. There will be more discussion about exams as the semester goes on. There will be no makeup exams, please see me if there is an issue with the scheduling.

### Laboratory Grade

This is an important part of the course. A majority of your overall grade will come from laboratory work and the mock trial. Included in this are case reports, lab notes, and case results. Case reports and case notes are worth a total of 50 points and are due one week after completing the case exercise by 5:00 pm. These are to be turned in to your course supervisor or TA. The late penalty is 3 points per day late. This includes the total grade on report and notes. Case notes and case reports are to be done on specific case forms. Please see OnCourse CL for the templates. Unknown results should also be turned in with your report. Late unknown results will result in 1 point per day late. Weekends do not count in days late penalty. Reports will have a cover sheet to be turned in with report. These include point break down of report and unknown result. These can be found on OnCourse CL.