

Chem 638: Introduction to Mass Spectrometry

Spring 2016: Thursday 9:55 – 10:45 am, room B357, Chemistry

Instructor: Dr. Martha M. Vestling, Director of the Paul Bender Chemical Instrumentation Center
Mass Spectrometry Facility

Class Schedule:

| <u>Week</u> | <u>Date</u> | <u>Topic</u> |
|-------------------------|-------------|-----------------------|
| 1 | January 21 | Mass Spectra |
| 2 | January 28 | EI and CI |
| 3 | February 4 | MALDI |
| 4 | February 11 | ESI |
| 5 | February 18 | Ambient Ionization |
| 6 | February 25 | MSMS |
| 7 | March 3 | GCMS |
| 8 | March 10 | LCMS |
| 9 | March 17 | Bottom Up |
| March 24 = Spring Break | | |
| 10 | March 31 | Top Down (topic due) |
| 11 | April 7 | Analyzers |
| 12 | April 14 | Quantifying |
| 13 | April 21 | Surfaces and Imaging |
| 14 | April 28 | Lab Tour (paper due) |
| 15 | May 5 | UW mass spectrometers |

Requirements for 1 credit:

1. Class attendance and participation. If you must miss one class, make sure you attend a mass spectrometry seminar. Missing more than one class will affect your grade.
2. Short paper (3-5 pages) that discusses the mass spectrometry of a particular group of compounds of interest to you (for example: phosphopeptides, disulfides, ruthenium compounds, yeast proteins, carbohydrates, polymers, drug metabolites). This assignment is NOT a research proposal. Subsets of large general areas are needed. For example, proteins, peptides, polymers, metabolites are all too large. Cite at least four papers making sure that three have recent dates (2014-2016). Do not count review articles as part of the four. Each citation should include: authors, journal title, volume, pages, year, and title of the article. Generally mass spectrometry is a technique that is used to support a research project, so the mass spec information you need to discuss may be only in a paper's experimental section. The challenge is to read experimental sections and figure out what was needed to obtain mass spectra for your particular group of compounds. Look at ionization methods, analyzers, solvents, calibrants, sensitivity, resolution, clean up and sample handling details. Your choice of a topic is due March 31, 2016 at 9:55 am. The paper is due April 28, 2016 at 9:55 am.

Mass Spectrometry Seminars – Spring 2016

Feb. 11, 2016 at 12:15 pm, room 1315, Chemistry, G. Potts, UW

April 7, 2016 at 12:15 pm, room 1315, Chemistry, Prof. Yu Yia, Purdue University

Others as the semester unfolds.