Instructor: Dr. Leslie Meadows Frost 464 Science Phone: 696-6774 e-mail: frost@marshall.edu

Office Hours: I am always happy to assist at any time when I am in my office. Official office hours will be: TR 1-2, W 11-1

Statement of Course: This course has been designed to introduce you to the theory and applications of mass spectrometry. This course includes a laboratory component in which you will learn to run the mass spectrometers and interpret mass spectral results.

Prereqs: There are no prerequisites listed for this course; however the student should have had a general chemistry course and an organic chemistry course. This is an upper level chemistry course, and as such you will be expected to have some basic knowledge of chemistry and biochemistry.

Textbook: The expanding role of Mass Spectrometry in Biotechnology by Gary Siuzdak
This textbook can be purchased online at Amazon.com for about $25 dollars.

Online Sites: There are many good online sites for mass spectrometry. The next page contains many websites that may be of interest to you over the course of the semester. I would like everyone to read the asms publication “What is Mass Spectrometry” by next week. http://www.asms.org/whatisms/

We will also be following the information found at http://massspec.scripps.edu/information/intro/index.html throughout the course of the semester.

Attendance Policy: Attendance is not mandatory for this course, except for exam days. However, students make much better grades in this course if they attend class regularly.

Topics:
Introduction to Mass Spectrometry
History of Mass Spectrometry
Ionization Sources
Mass Analyzers
Detectors
Vacuum Systems
Separation/mass spectrometry
MS/MS
Applications: Isotope Abundances, Biological Applications

Exam Schedule:
Exam 1, Feb. 7 20%
Exam 2, March 6 20%
Exam 3, April 3 20%
Exam 4, May 1 20%

Exam dates are approximate. You will be given 1 week prior notice before all exams. You must have a university excuse for missing an exam to be able to take a make-up exam. You will need to make arrangements with me to take the make-up exam.

Grading Scale:
90-100  A  
80-89   B  
70-79   C  
60-69   D  
Below 60  F

Hourly exams  80%
Lab    15%
Participation  05%

**Homework:** Each student is to prepare for each class by reading the material covered in the previous class, answering the relevant problems at the end of each chapter, and previewing the material to anticipate the next class lecture. Additional homework problems will be given out throughout the semester, but these will not be turned in for a grade.

**Laboratory Component of Course:** We will be conducting several online mass spectrometry based lab exercises throughout the semester. Most of these can be conducted on your own time (you will need access to the internet), but I will be available for assistance with these labs. There will be material from the lab exercises which will be turned in for a grade. In addition, you will have the opportunity to run the three mass spectrometers here at Marshall. I will be passing out handouts for each lab throughout the semester.

**Academic Dishonesty:** Students should read the following section from the Marshall catalog which describes academic dishonesty ([http://www.marshall.edu/www/ugradcat/PDF/05_09.pdf](http://www.marshall.edu/www/ugradcat/PDF/05_09.pdf)). Any student caught cheating in this course will receive 0 points on that assignment or exam.