Course Syllabus

Instrumental Analysis of Oil & the Gulf of Mexico Environment

Chemistry 306 section 01

Lectures MWF 12-1:10 GH 070 Fridays 1:20-4:20 GH 216

Fall 2010

4 credits

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Office Hours: Monday & Wednesdays, 10:45-11:50 and by appointment.

Required Text:

Exploriing Chemical Analysis, 4th Edition, Daniel C. Harris, Freeman Publishers 2009.

Recommended Text:

Undergraduate Instrumental Analysis 6th Edition, J. W. Robinson, E. M. Skelly Frame & G. M. Frame III

Introduction:

This course has two overarching goals. First is the understanding of modern chemical techniques. Second is the understanding of the role of a scientist in modern society.

With regards to the first goal, this course teaches theory and practice of a number of modern techniques of chemical analysis including chromatography, spectroscopy, electrochemistry and computer interfacing. Laboratory work is designed to familiarize the student with the use of various instruments used in chemical analyses including infrared, ultraviolet-visible, atomic absorption, and mass spectrometers, fluorometry and gas-liquid and high pressure liquid chromatographs.

With regards to the second goal, we will be studying the impact of the 2010 Gulf of Mexico oil spill as it relates to the coastal community and nation.

Expectations and grading:

Grading:

Exam I:	25%
Exam II:	25%
Homework/Article Reviews	25%
5 Oral Quizzes	10% Each
Class Portfolio	15%

Evaluation:

The minimum weighted semester average is listed next to each letter grade.
A 92%, A- 90%, B+ 88%, B 82%, B- 80%, C+ 78%, C 72%, C- 70%, D+ 68%, D 62%, D- 60%, F < 60%

Disclaimer: The instructor reserves the right to make necessary modifications to the syllabus during the course of the semester.

Your work should be turned in on time. Late penalties may be assigned for overdue assignments, and at this stage of your academic career you should be budgeting your time so that you are able to meet reasonable deadlines. This is good practice for the future as well. Missed assignments will receive a 0% unless preauthorized by myself.

Ethics: I will follow the university policy on cheating and plagiarism as outlined in the Student Code of Rights and Responsibilities in the "To the Point" student Handbook.

In addition to the availability of the instructor, I encourage all students to take advantage of the student chapter of the ACS help sessions as well as the many chemistry resources available in the library and on the web.

The Writing Center, located in room 115 in the Library, has peer tutors trained to discuss your writing with you. No matter where you are in the writing process (brainstorming ideas, understanding assignments, or revising rough and final drafts), the tutors in the Writing Center can assist you. These tutors are your peers—they do not grade or proofread your paper, but instead offer an opportunity to work with others on becoming a stronger writer. I encourage you to use the Writing Center as much as possible.

Attendance Policy: Regular attendance at classes is expected, and all students are responsible for any class work done or assigned during any absence.

Students with Disabilities:
Students with disabilities who seek accommodations in this course must submit documentation of their disability to the Office of Academic Services before receiving accommodations.

Inclement Weather Policy: Class or lab will be cancelled if the college is closed due to inclement weather. The College Web site will have the latest weather-related closure information. Also you can listen to the following Radio: WPTX 920 AM, WTOP 1500 AM, WMDM 97.7 FM, WSMD 98.3 FM, WASH 97.1 FM, WBAL 1090 AM, WETA 91 FM or TV: WRC-TV 4, WJZ-TV 13, WUSA-TV 9. Whenever there is a question, the Office of Public Safety (ext. 4911) will have the most up-to-date information.

Topic Outline (tentative):

Week	Topics
1	Introduction to Spectroscopy, Travel to gulf coast over Labor Day weekend.
2	Infrared Spectroscopy, assigned GoM (Gulf of Mexico) reading, lab safety overview.
3	Visible & UV Spectroscopy, assigned GoM reading, UV-Vis testing of GoM samples
4	Fluorometry, assigned GoM reading, Fluorescence testing of GoM samples
5	Atomic spectrometry, GoM reading, FTIR testing of GoM samples
6	X-Ray Spectroscopy, **Exam 1,** XRF testing of GoM samples
7	LIBS, GoM reading, GoM presentations to Student Groups
8	Mass Spectrometry I: Principles & Instrumentation, GoM readings, GoM sample prep for GC
9	Mass Spectrometry II: Spectral Interpretation & Application, GC-MS testing of GoM samples
10	Principles of Chromatography, GoM reading, TLC testing of GoM samples
11	Gas Chromatography, GoM reading, tour environmental research lab
12	Liquid Chromatography, GoM reading, HPLC testing of GoM samples
13	Electroanalytical Chemistry, Lab presentations & clean-up

12/15/2010 2pm-4:15pm Exam II

Blackboard:
Blackboard electronic software will be used to post assignments, announcements, powerpoint lectures and grades. Check Blackboard daily.

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Miscellaneous:
Unauthorized persons in class are forbidden.
During lab, all students are required to wear safety eyewear.
Labor Day. NO CLASS 9/6/2010
Fall Reading Day. NO CLASS 10/11-12/2010
Mid-Semester Grades due to Registrar: 10/18/2010
Last day to withdraw from class with a W: 11/5/2010
Thanksgiving Break. NO CLASS 11/23-28/2010
Last day of class: Friday, 12/10/2010
Grades Due to Registrar: 12/20/2010