

Syllabus for CHM 3120

Analytical Chemistry

Spring 2015

Instructor: Dr. Benjamin W. Smith, 264 Keene-Flint Annex
bwsmith@ufl.edu Phone: 392-0256
Office Hours: Tuesday and Thursday periods 1-2, or by appointment
Students are welcome to stop by my office at any time

Lectures: Monday, Wednesday, Friday, 2nd period, CLB 130

Required Textbook: *Quantitative Chemical Analysis*, 8th Edition, Daniel C. Harris, Freeman, 2010
And: i>clicker2, ISBN: 1429280476, available at the bookstore

Course Objectives

This course treats chemistry as a quantitative science and seeks to develop a keen observational and analytical insight. The emphasis is upon classical and modern instrumental methods of chemical analysis, chemical laboratory methodology and the sensible interpretation of quantitative measurements.

Tentative Course Schedule

Subject to minor revisions

Date	Lecture Topic	Book Chapters
Jan 7	Introduction and Overview of the Course	Chapter 0
Jan 9	Chemical Measurements, units	Chapter 1
Jan 12	Safety and Tools	Chapter 2
Jan 14	Tools	Chapter 2
Jan 15	Experimental Errors	Chapter 3
Jan 16	Experimental Errors	Chapter 3
Jan 19	MLK Holiday	
Jan 21	The Essential Statistics	Chapter 4
Jan 23	Statistics	Chapter 4
Jan 26	Exam 1	Chapters 0-4
Jan 28	Calibration and Figures of Merit	Chapter 5
Jan 30	Fundamentals of Electrochemistry	Chapter 13
Feb 2	Electrochemistry	Chapter 13
Feb 4	Electrochemistry	Chapter 13
Feb 6	Electrodes and Potentiometry	Chapter 14
Feb 9	Electrodes and Potentiometry	Chapter 14
Feb 11	Redox Titrations and Electroanalytical Techniques	Chapter 15
Feb 13	Electroanalytical Techniques	Chapter 16
Feb 16	Electroanalytical Techniques	Chapter 16
Feb 18	Exam 2	Chapters 5, 13
Feb 20	The Beholding of the Light: the background of spectrochemistry	
Feb 23	Spectroscopic Instrumentation: manipulation of photons	Chapter 19
Feb 25	Spectroscopic Instrumentation	Chapter 19
Feb 27	Spectroscopic Instrumentation	Chapter 19

Mar 2	Spring Break	
Mar 4	Spring Break	
Mar 6	Spring Break	
Mar 9	Fundamentals of Spectrophotometry	Chapter 17
Mar 11	Fundamentals of Spectrophotometry	Chapter 17
Mar 13	Applications of Spectrophotometry	Chapter 18
Mar 16	Applications of Spectrophotometry	Chapter 18
Mar 18	Atomic Spectrometry	Chapter 20
Mar 20	Atomic Spectrometry	Chapter 20
Mar 23	Exam 3	
Mar 25	Mass Spectrometry	Chapter 21
Mar 27	Mass Spectrometry	Chapter 21
Mar 30	Mass Spectrometry	Chapter 21
April 1	Introduction to Analytical Separations	Chapter 22
April 3	Analytical Separations	Chapter 22
April 6	Gas Chromatography	Chapter 23
April 8	Gas Chromatography	Chapter 23
April 10	Liquid Chromatography	Chapter 24
April 13	Liquid Chromatography	Chapter 24
April 15	Electrophoresis and Chromatography methods	Chapter 25
April 17	Electrophoresis and Methods	Chapter 25
April 20	Exam 4	
April 22	A survey of trends in modern analytical chemistry	
April 25– May 1	Final Exam Date to be announced	

Students may use calculators on exams. Cell phones must be turned off and out of sight during exams. Please do not arrive late, leave early or make any use whatsoever of electronic communications devices during the lectures.

Grading

Grades will be determined from a point distribution as follows:

Clicker Problems in lectures (20 @ 10 pts each)	200 points
Progress Exams (best 3 of 4 @ 300 pts each)	900 points
Final Exam:	<u>400 points</u>
Total:	1500 points

Grades are not curved. The following scale will be used:

A (88.0–100%), A- (86.0-87.9%), B+ (81.5-85.9%), B (78.5-81.4%), B- (74.5-78.4%), C+ (71.5-74.4%), C (67.0-71.4%), C- (64.5-66.9%), D+ (60.0-64.4%), D (57.0-59.9%), D- (53.0-56.9%), E (<53.0%).

Note: 13% of your grade will be determined by the in-class problems. To accommodate for anyone who might forget to bring their clicker to lecture, we will offer at least 30 problems and count your best 20 results towards your grade.

Grading concerns: We do our best to make all grading accurate and fair. If you believe there was an error in the grading of an exam, first see a TA about the issue. If you remain unsatisfied or have a question, then see me. This must be done within one week after the exam is returned to you. See: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx> for additional UF grades and grading policies.

Teaching Assistants:

To be announced
Office:
Office hours:
E-mail:

To be announced
Office:
Office hours:
Email:

Attendance Policy

If you wish to learn the subject and earn credit for the in-class problems you should plan on attending all lectures. Make up exams will be given according to university regulations to accommodate religious obligations or illness. Please communicate requests in advance when possible or provide medical documentation for unanticipated illness.

Classroom accommodations

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

e-learning: We will use the UF Canvas e-learning system for course management. Here you will find an electronic syllabus, your grades, which only you may see, class announcements, special resources and other pertinent information for the course. Lecture powerpoint slides will be posted after each lecture. Access e-Learning through your myUFL portal.

Academic Honesty

Exams are given under the provisions of the University of Florida Honor System. *Any student caught cheating will receive a failing grade in the course.* I recommend you examine the UF policy on academic honesty at: <http://www.dso.ufl.edu/judicial/academic.php>.

If you are aware of a climate that promotes academic dishonesty, please notify the instructor or contact the Student Honor Court (392-1631) or the Cheating Hotline (392-6999).