

# Syllabus for CHM 3120

## Analytical Chemistry

### Spring 2016

**Instructor:** Dr. Benjamin W. Smith, 264 Keene-Flint Annex  
[bwsmith@ufl.edu](mailto: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, 2<sup>nd</sup> period, CLB 130

**Required Textbook:** *Quantitative Chemical Analysis*, 9<sup>th</sup> Edition, Daniel C. Harris, Freeman, 2016  
**And:** Top Hat Teaching Platform for in class quizzes

#### 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 6	Introduction and Overview of the Course	Chapter 0
Jan 8	Chemical Measurements, units	Chapter 1
Jan 11	Safety and Tools	Chapter 2
Jan 13	Tools	Chapter 2
Jan 14	Experimental Errors	Chapter 3
Jan 15	Experimental Errors	Chapter 3
Jan 18	MLK Holiday	
Jan 20	The Essential Statistics	Chapter 4
Jan 22	Statistics	Chapter 4
Jan 25	Statistics	Chapter 4
Jan 27	Calibration and Figures of Merit	Chapter 5
Jan 29	<b>Exam 1</b>	Chapters 0-4
Feb 1	Fundamentals of Electrochemistry	Chapter 14
Feb 3	Electrochemistry	Chapter 14
Feb 5	Electrodes and Potentiometry	Chapter 15
Feb 8	Electrodes and Potentiometry	Chapter 15
Feb 10	Electrodes and Potentiometry	Chapter 15
Feb 12	Redox Titrations and Electroanalytical Techniques	Chapter 16
Feb 15	Electroanalytical Techniques	Chapter 17
Feb 17	Electroanalytical Techniques	Chapter 17
Feb 19	Electroanalytical Techniques	Chapter 17
Feb 22	Electroanalytical Techniques	Chapter 17
Feb 24	<b>Exam 2</b>	Chapters 5, 14-16
Feb 26	The Beholding of the Light: the background of spectrochemistry	Chapter 20

Feb 29	Spring Break	
Mar 2	Spring Break	
Mar 4	Spring Break	
Mar 7	Spectroscopic Instrumentation: manipulation of photons	Chapter 20
Mar 9	Spectroscopic Instrumentation	Chapter 20
Mar 11	Spectroscopic Instrumentation	Chapter 20
Mar 14	Fundamentals of Spectrophotometry	Chapter 18
Mar 16	Fundamentals of Spectrophotometry	Chapter 18
Mar 18	Applications of Spectrophotometry	Chapter 19
Mar 21	Applications of Spectrophotometry	Chapter 19
Mar 23	Atomic Spectrometry	Chapter 21
Mar 25	<b>Exam 3</b>	Chapters 17, 20,18
Mar 28	Atomic Spectrometry	Chapter 21
Mar 30	Atomic Spectrometry	Chapter 21
April 1	Mass Spectrometry	Chapter 22
April 4	Mass Spectrometry	Chapter 22
April 6	Introduction to Analytical Separations	Chapter 23
April 8	Gas Chromatography	Chapter 24
April 11	Gas Chromatography	Chapter 24
April 13	Liquid Chromatography	Chapter 25
April 15	Liquid Chromatography	Chapter 25
April 18	<b>Exam 4</b>	Chapters 19-22
April 20	A survey of trends in modern analytical chemistry	
April 29	<b>Final Exam Group 12C: 12:30, Friday, April 29</b>	

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. Of course, your smartphone app for TopHat questions will be used often.

## Grading

Grades will be determined from a point distribution as follows:

TopHat Problems in lectures (20 @ 10 pts each)	200 points
Progress Exams (best 3 of 4 @ 400 pts each)	1200 points
Final Exam:	<u>400 points</u>
Total:	1800 points

**NOTE:** you will have the option of dropping the final (or not taking it) and counting all 4 progress exams if you wish.

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:** 11% of your grade will be determined by the in-class problems. To accommodate for anyone who might miss some of these, 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:** (do not be confused, we coincidentally have the same name)

Mr. Ben C. Smith  
Office: TBA  
Office hours: TBA  
E-mail: [benjamins@chem.ufl.edu](mailto:benjamins@chem.ufl.edu)

Ms. Emily Coyle  
Office: Keene-Flint 264  
Office hours: TBA  
Email: [emilyanncoyle@ufl.edu](mailto:emilyanncoyle@ufl.edu)

### 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

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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).