

Syllabus - Chemistry 335 - Fall 2016

Chemical and Biochemical Analysis (Lecture and Laboratory)

Prerequisites: Chemistry 116/117 or CHE 119/139

Lecture Time and Place: Tuesday and Thursday, 11:00 AM - 12:20 PM 100 Life Sciences

Lab Time and Place: Tuesday and Thursday, 12:30 - 3:20 PM 201 Life Sciences

Instructor: Dr. Ulrich Englisch, Office 3-014D; Telephone 443-5250; uenglich@syr.edu

Teaching Assistant: Nick Azzarelli (njazzare@syr.edu)

Office Hours: By appointment (Please, send an email.)

Text: Quantitative Chemical Analysis, 9th Ed by Daniel C. Harris. eTEXTBOOK: Your course text is available as a low cost online eTextbook. For details please see Homework below.

Homework:

The required homework is provided through Sapling Learning, see weblink. This is also the website where you can find access to the eTextbook. To gain access go to:

<http://bit.ly/saplinginstructions>

and follow the instructions on the site. Sapling Learning offers a grace period on payment; for most courses, this is 14 days from the first day of the term. We have a web TA available for this course. During sign up or throughout the term, if you have any technical problems or grading issues, please send an email directly to support@saplinglearning.com explaining the issue.

Optional texts (*further reading*):

Analytical Chemistry 2.0 (David Harvey, available online at <http://www.asdlib.org/onlineArticles/ecourseware/Welcome.html>)

Web Access After Registration: <http://blackboard.syr.edu/webapps/login/>

Class Schedule of Lectures (tentative)

Tuesday	Topic	Thursday	Topic
Aug 30	The Analytical Process, Tools (0-2)	Sep 01	The Analytical Process, Tools, Experimental Error (0-2,3)
Sep 06	Statistics (4)	Sep 08	QA and Calibration (5)
Sep 13	Chemical Equilibrium (6)	Sep 15	Titrations (7)
Sep 20	Activity and Systematic Treatment of Equilibria (8);	Sep 22	Acid-Base Equilibria, Buffers(9)
Sep 27	Polyprotic Acids & Bases, Titrations (10, 11)	Sep 29	<i>Review Chapters 1-11</i>
Oct 04	<i>Hour Exam; Chapters 1-11</i>	Oct 06	<i>Review Exam Results</i>
Oct 11	Fundamentals of Spectrophotometry (18)	Oct 13	Fundamentals & Applications of Spectrophotometry (18 → 19)
Oct 18	Spectrophotometers (20)	Oct 20	Atomic Spectroscopy (21)
Oct 25	Mass Spectrometry (22)	Oct 27	EDTA Titrations (12)
Nov 01	Analytical Separations (23)	Nov 03	Gas Chromatography (24)
Nov 08	Liquid Chromatography (25)	Nov 10	Capillary Electrophoresis (26)
Nov 15	<i>Review Chapters 18 - 26</i>	Nov 17	<i>Hour Exam Chapters 18 - 26</i>
<i>Nov 20-27 No Class, Thanksgiving Break</i>			
Nov 29	<i>Return Hour exams and review</i>	Dec 01	Fundamentals of Electrochemistry (14)
Dec 06	Electrochemistry cont.	Dec 08	<i>Review Entire Course</i>
Cumulative Final Exam: Thursday Dec. 15, 2016, 3:00 p.m. - 5:00 p.m., location TBD <i>No early or make-up final exam available.</i>			

Exams will be held in LSC 215, from 12:30-2:30 pm.
Any changes will be announced in class.

Schedule of Laboratory Experiments (tentative)

Lab Date Week of ...	Topic
Aug 29/ Sep 01	<i>No Lab Tuesday (First day of Class); (*1-Hour Check-in Thursday, check with instructor)</i>
Sep 06	1. Error Analysis, Pipetting, and Quantification of DNA and Protein by UV
Sep 13	2. Determination of Chloride: Onondaga Lake, Jamesville Reservoir & Sea Water
Sep 20	3. Determination of Replaceable Protons by Direct Titration
Sep 27	4. Spectrophotometric Determination of Iron in Vitamin Tablets
Oct 04	<i>No Lab (Exam Day)</i>
Oct 11	5. Determination of Xylenes in Gasoline by FTIR Spectroscopy
Oct 18	6. Protein Unfolding Monitored by Fluorescence
Oct 25	7. Determination of Citric Acid in Soft Drinks and other Beverages
Nov 01	8. EDTA Titrations for Determination of Ca ²⁺
Nov 08	9. Separation of Amino Acids by Thin Layer Chromatography
Nov 15	10. Solid Phase Extraction and Gaschromatography-Mass Spectrometry (Part 1)
Nov 22	<i>No Lab (Thanksgiving Break)</i>
Nov 29	10. SPE and GCMS (Part 2)
Dec 06	<i>Lab Clean-up and Review Session</i>

Notes:

A short in-lab lecture on the principles, techniques and rationale underlying each experiment will be provided just prior to the experiment.

Lab Grading: 10 points for lab notes, 40 points per lab report, for a total of 500 points for 10 experiments.

Final Grade: A single grade will be given for the 4-credit course. It will be based equally on the lecture and laboratory portions of the course (50% each). The lecture grade will consist of two exams (no less than 50%), online assessments (~ 15%), and a final cumulative exam (35%)

Absences:

If you will be absent, contact the instructor and TAs before lab. Medical absences will be considered based on written advice from the Health Center or a health-care provider. A student shall request a note from the Health Center staff to verify an illness. The medical document must specifically indicate that you were unable to attend the class/laboratory. All such absences will be verified by Chemistry Department staff. In general, there will be **no** make-up labs. If you are ill or must miss lab for another valid reason, contact the instructor and TA **immediately** – in advance if at all possible. If you miss more than one lab session due to illness or injury, bring a note from the Health Center or your private physician to your instructor. In the case of extended absence, please contact the Dean's office in your college for information regarding your options. Grade adjustments can only be made with official documentation of an emergency situation from the Health Center, or a written excuse by a Dean regarding special situations in the family, etc.

Three (3) unexcused absences will earn the student a final grade of "FAIL" .

Academic Integrity for Lecture and Laboratory

Complete academic honesty is expected of all students. Any incidence of academic dishonesty, as defined by the SU Academic Integrity Policy (see <http://academicintegrity.syr.edu>), will result in both course sanctions and formal notification of the College of Arts & Sciences.

In this course:

- Students may work together on all homework assignments, but must write out their answers in their own words, without copying verbatim from another student's homework.
- Students may work with partners in carrying out laboratory experiments, but only to the extent directed by the teaching assistant during each individual experiment.
- All other submitted writings, calculations, and/or graphical work that counts towards the grade must be the creation of individual students, and not the result of a partnership or group effort.
- In particular, no student may receive help from any other student during in-class written examinations.
- Additionally, assistance in writing laboratory reports from anyone else (other students; faculty; or family members) that extends beyond critiquing and correction, e.g. of minor typographical or mathematical errors, is prohibited without advance email permission from the instructor.
- Each lab report may have at most ~5% of its text, data, and figures taken from previously-published work (or from previously-submitted assignments by the same student); but only if the original material is cited clearly, and is available to the instructor, TAs, and/or graders without cost from Syracuse University libraries, or from free or SU-library-licensed websites; or (if it is the student's prior work) it is photocopied and included with the lab report. Anything beyond these limits will be considered unacceptable plagiarism.

Disability-Related Accommodations

If you believe that you need accommodations for a disability, please contact the Office of Disability Services(ODS), <http://disabilityservices.syr.edu> , located in Room 309 of 804 University Avenue, or call (315) 443-4498 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

Syracuse University and I are committed to your success, and to supporting Section 504 of the Rehabilitation Act of 1973. This means that in general no individual who is otherwise qualified shall be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity, solely by reason of having a disability.

You are also welcome to contact me privately to discuss your academic needs. My direct participation in designing disability-related accommodations will generally be limited to those that would require special expertise in chemistry-- for example, in modifying any of the course's laboratory procedures as needed to accommodate a sensory disability (color blindness), or a physical disability (e.g. a diminutive stature that makes use of standard-length burets a challenge).

Absence for Religious Holidays

SU's religious observances policy, found at http://supolicies.syr.edu/emp_ben/religious_observance.htm, recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their tradition. Under the policy, CHE 335 students will be provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance, provided they notify the instructor *by email before the end of the second week of classes (i.e. by Sept. 5)*. An online notification process is available through MySlice/Student Services/Enrollment/My Religious Observances from the first day of class until the end of the second week of class.