

COURSE SYLLABUS
CHEMISTRY
CHEM 110 Fall 2013
Sections 2 and T401*

Credit Hours: 3

Course Location: Faraday Hall 143 11:00-12:15 Tu, Th

INSTRUCTOR: Dr. Petr Vanýsek; Office, La Tourette Hall 418

Course web site:

http://www.vanysek.com/electrochemistry/110_material/chem_110_f13.htm

OFFICE HOURS: Tuesdays and Thursdays 12:30 – 13:45. Other times by appointment only. I will help you with your problems, but come to see me with questions and problems already at least partially prepared. Bring your class notes along. Do not expect the instructor to give you your own private make-up class. When coming to the office hours, be prepared to share the office or the time with other students.

Course Description

Development of the fundamental principles and concepts of chemistry by lecture-demonstration, as well as the development of an appreciation of the nature of chemistry as a science. An (sic) historical development of the most important concepts and ideas. Methods and limitations of chemistry, its evolution and discussions of the problems currently being solved and created.

Intended learning outcome

Students will demonstrate

Use of science process and thinking skills.

Science interests and attitudes.

Understanding of fundamental and important chemistry concepts and principles.

Demonstrate awareness of the social and historical aspects of chemistry.

* Themed Learning Community (TLC) Policy

This course (only Section T401, not Section 2) is part of a Themed Learning Community, meaning it is intentionally paired with one or two other courses taken in conjunction with one another. It is required that you are enrolled in ALL TLC courses simultaneously in order to benefit from the unique learning opportunity created by these bundled courses. If, for some reason, you wish to drop one of your TLC courses, you must drop all of the courses that make up this TLC. Students are responsible for seeking additional guidance from their TLC instructors or the Office of Student Engagement and Experiential Learning (OSEEL) regarding possible withdrawal from TLC courses. Along with the benefits of integrative coursework, TLC students will also benefit from additional mentoring, academic support, and additional co-curricular opportunities.

Effective communicative skills, including interpersonal communication (oral and written).

Ability to read and understand news about chemistry related events and engage in meaningful conversation with lay counterparts.

Assessment

Exams will be used to assess student learning. Exams will include multiple-choice questions. Answering the questions will require the students to use both higher order thinking skills and lower order thinking skills. There will be five possible answers; only one will be correct. Only one answer per question can be marked. Only the correct choice will count towards the test score. Because of this simplicity in scoring, there is no grading rubric for this course.

EXAMS AND GRADING: Hour tests (3) worth each 100 points. The score of the test with the lowest score will be dropped and replaced by the average of the other two tests. Note that the rule of dropping the score of the lowest-scoring test is also your insurance against missing a test. Missed test = 0 = lowest score is dropped. Only one test will be dropped. There will be no make-up for tests for any reason.

Tests: 60% (300 points, *i.e.*, 3 tests are counted)

Comprehensive final test 40% (200 points) NOTE THAT TAKING THE FINAL TEST IS REQUIRED.

[TOTAL 100% = 500 points]

To satisfy the granularity of the plus/minus grading, the cumulative number of questions asked in the course will be a multiple of 25.

Your class percentage will be calculated as the sum of all the points earned (with the lowest semester test score replaced by the average of the other two semester tests), divided by 5. The grades will be as follows (verbal meaning as per the NIU catalog):

A (Outstanding Competence) 92 % and more

A- (Outstanding Competence) 88 – 92 %

B+ (Above satisfactory competence) 84 – 88 %

B (Above satisfactory competence) 80 – 84 %

B- (Above satisfactory competence) 76 – 80 %

C+ (Satisfactory level of competence) 72 – 76 %

C (Satisfactory level of competence) 68 – 72 %

D (Marginally satisfactory competence) 56% to 68%

F (Unsatisfactory level of competence) < 56%

Americans with Disabilities Statement:
Accessibility Statement

Northern Illinois University is committed to providing an accessible educational environment in collaboration with the Disability Resource Center (DRC). Any student requiring an academic accommodation due to a disability should let his or her faculty member know as soon as possible. Students who need academic accommodations based on the impact of a disability will be encouraged to contact the DRC if they have not done so already. The DRC is located on the 4th floor of the Health Services Building, and can be reached at 815-753-1303 (V) or drc@niu.edu.

Academic Integrity Statement:

ACADEMIC DISHONESTY: In general, cheating means presenting or using work that was not done entirely by you and, in the case of in-class examination, it includes also presenting or using your work that was written outside the classroom. You may not talk or pass notes to each other on any subject. Having other materials than those allowed for the work with you within reach during test or sharing calculators is cheating as well. During tests you must put away any devices that would allow you to communicate with others or access databases. You are allowed to use only the specified calculator. Any other type has to be put away. The phones have to be put away, and in no circumstance you can use a calculator on the cell phone. Violation of this rule will result in zero on your work.

Proposed Course Schedule

DATE dd.mm.yy	TOPIC	CHAPTER
27.8.13	Introduction to the course. Methods	1
29.8.13	Methods and measurement	1
3.9.13	The structure of the atom, periodic table, isotopes	2, 9
5.9.13	The structure of the atom, periodic table, isotopes	2, 9
10.9.13	The structure of the atom, periodic table, isotopes	2, 9
12.9.13	Ionic and covalent compounds	3
17.9.13	Ionic and covalent compounds	3
19.9.13	Ionic and covalent compounds	3
24.9.13	Ionic and covalent compounds	3
26.9.13	Test I	1-3, 9
1.10.13	Calculations and the chemical equation	4
3.10.13	Calculations and the chemical equation	4
8.10.13	Calculations and the chemical equation	4
10.10.13	States of matter: Gases	5

15.10.13	States of matter	5
17.10.13	States of matter	5
22.10.13	Solutions	6
24.10.13	Solutions	6
29.10.13	Test II	4-6
31.10.13	Day off	
5.11.13	Energy, Rate, and Equilibrium	7
7.11.13	Energy, Rate, and Equilibrium	7
12.11.13	Energy, Rate, and Equilibrium	7
14.11.13	Acids and bases and oxidation and reduction	8
19.11.13	Acids and bases and oxidation and reduction	8
21.11.13	Test III	7-8
26.11.13	Acids and bases and oxidation and reduction	8
28.11.13	THANKSGIVING Break	
3.12.13	The nucleus, radioactivity and nuclear medicine	9
5.12.13	The nucleus, radioactivity and nuclear medicine Course review	9
10.12.13	Final	1-9

(You may be taking concurrently CHEM 111, the laboratory to accompany CHEM 110. This is a course separate from CHEM 110 and the laboratory (111) and class (110) grading is independent of each other. The instructor responsible for CHEM 111 is Dr. D. Ballantine, Jr., La Tourette 424.)

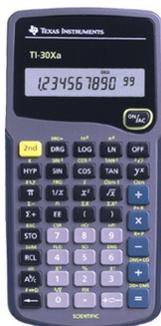
Schedule of tests (all in Faraday Hall 143):

September 26	Test I
October 29	Test II
November 21	Test III
December 10	Final (10:00-11:50)

For the tests there will be a seating chart, with a seat number assigned to each student.

TEXTBOOK: General, Organic and Biochemistry (sorry about the poor grammar of the title) Chapters 1-9, by K. Denniston, J. Topping, K. Woodrum and R. Caret, 8th Edition, Mc-Graw Hill 2014. You can also use the full version of the text (ISBN 0-07-

340276-5) although we will talk only about the first 9 chapters. It might be cheaper to buy a used one from an outside vendor. If you use any of the previous editions, be aware that the page numbers and problems numbers will likely not agree with the official text and the text may be somewhat different as well.



CALCULATOR:

There is a required calculator for this course, the Texas Instruments TI-30Xa. Walmart has it (June 1, 2013 and again August 13, 2013) for \$8.94. Buy one. This is the specific model. Do not get, for example, the TI-30xIIS (solar, which has different functions). When we perform calculations in class or during practice, all will be explained using this calculator. Have a calculator and a paper pad for calculations ready for each class period. The lecture will be often interspersed with your active participation. For tests and quizzes it is assumed that everybody has the specified calculator, a pencil, a student ID, and adequate knowledge to answer correctly the questions.

The course relies on active knowledge of mathematical calculations and the ability to setup algebraic equations. Helpful for those insecure in mathematics are the following books: C. D. Miller, M. L. Lial, D. I. Schneider; Fundamentals of college algebra (MATH 110 book, or similar); Dorothy M. Goldish: Beginning mathematics for beginning chemistry, 4th Ed., Macmillan, New York, 1990. Walter J. Gleason: "Is your math ready for chemistry?" W. C. Brown Publishers, Dubuque 1993.

Class curve: Department of Chemistry and Biochemistry mandates certain class average to assure consistent grading across multiple sections, therefore your scores may be adjusted by moving the boundaries between individual grades. The mandated course average for CHEM110 is 1.85 GPA.

Using the Scantron forms: Fill in the ovals using a pencil, either No. 2 or the equivalent HB hardness. Be sure that you fill in your last name (and fill in the corresponding ovals) and include your initials. If you have just one initial, leave the second field blank. If you change your name during the semester it may be more practical to keep using the old name/initials.

The block for the ID NUMBER has 9 spaces, which was originally intended for the social security number. The university may no longer use the social security number for identification. Instead you will use the "Z" number, issued to you as a computer logon and a general (e.g., library) identification number. It starts with the letter Z and is followed (usually) by 7 numbers, e.g., Z1032673. Omit in the SCANTRON the letter Z and write the seven numbers as your student ID starting at the leftmost column. It will leave two empty spaces at the end. If your number begins with zero, include it. It is important to use the number as the computer grading

calculated and then do the actual calculation, usually not hard with a calculator. However, setting up the problems may be challenging for some.

Take as an example the following problem: Seven lemons sell for three dollars. How much will it cost to buy twelve lemons? This is a simple ratio calculation and the answer should be \$ 5.14. You should try, right now, and do the math. If you are not comfortable solving this problem, whether with a calculator or on a piece of paper, and do not know immediately how to set up the numbers to get the answer, then, you will have a major problem in this class. Do not take chemistry; enroll instead in a math skills refresher course.

Recommended for students with marginal math backgrounds is: D. M. Goldish, "Basic Mathematics for Beginning Chemistry, 4th Edition", MacMillan, New York, 1990.

Other issues:

- No smoking in the building, no food or drink in the class.
- TAPING/RECORDING OF THE LECTURE: You are encouraged to take good notes, reflecting your interpretation and understanding of the lecture. However, you are not permitted to make verbatim recording or transcription of the lecture and you are not allowed to take video recordings of any length..
- ATTENDANCE: Attendance at the lectures is not monitored but it is in your best interest to be there. Consider the following: (1) The tests are based on the textbook material covered in the class as well as the class material, which is not in the textbook, (2) Office hour cannot be used to catch up on material missed by a class absence. (3) One fifth of the questions on test is based on information given in the class but not in the book. LATE ARRIVAL TO CLASS is discouraged. It disrupts the other students and the instructor and if repeated, may be basis for barring from the class. If you absolutely must arrive late, enter quietly from the back and sit in the back. Only the persons enrolled in that class and that section can attend the lecture.
- CELL PHONES AND THE LIKE: Cell phones are great technology and it is great to have one with you for emergency. (Campus police: 815-753-1212). However, please, turn off your phones and other noise-making devices as a courtesy to others, and do not distract yourself by reading and sending text messages. Cell phones, etc., are not permitted within your reach during exams. Only the approved calculator is allowed during the tests.

Chemistry tutor schedule:

There will be TAs available to help with the laboratory (CHEM111) material, but when time permits, they may be available to help with the lecture material as well. Many will be located in Faraday Hall - Room 246. The schedule was not available at the time of this printing. Watch bulletin boards at the Chemistry hallways. The typical times are 8:30-15:30, with a break from 11:15-11:45.