

SYLLABUS – SPRING 2014

CHEM 201: WHY THINGS WORK: EVERYDAY CHEM

Course Description: In this course we will investigate the chemical explanations of everyday items and phenomena. A series of examples will be presented to illustrate the breadth and importance of chemistry in everyday life. Students who are uncomfortable with science as a discipline will increase their comfort level with the language of science. Students with a more established science background will see the everyday applications of the concepts they have studied in other classes.

Course Objectives:

- to identify the importance of science in everyday life
- to communicate ideas effectively using scientifically relevant language
- to understand the importance of testing the validity of an information source
- to develop a basic understanding of the chemical nature of everyday things

Instructor: Dr. Daniel King
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Office hours: Monday 10-12, Tuesday 4-5, Thursday 3:30-4:30, or by appointment

Required Textbook:

Conceptual Chemistry, Fifth Edition, John Suchocki, Pearson Education, Inc., 2014.

Meeting Times/Locations:

Section 001: Tuesday, Thursday 9:30 – 10:50, Disque 108

Section 002: Tuesday, Thursday 2:00 – 3:20, Stratton 113

Website:

The official course website will be located on Bb Learn, accessible through your Drexel One account (“My Courses” link) or directly (<https://learn.dcollege.net/>). Please check this site frequently as important information will be posted on a regular basis.

Classroom etiquette:

Once the class has begun, I will expect to have your full attention. Make sure that your cell phone is turned off during class. If I catch you text-messaging during class or you are disruptive, I reserve the right to ask you to leave.

Social Media:

If you want to share anything you learn during this course using social media, I would like to encourage you to include **#whythingswork** in your communications.

Grading:

Exams

- Quiz 1 (25%) – beginning of 5th week (tentative date)
- Quiz 2 (25%) – beginning of 9th week (tentative date)
- Final (10%) – take-home exam due during finals week

Homework problems (15%)

Homework assignments will be assigned weekly and are due in Disque 509 by 5 PM on Thursday. Each assignment will be graded on a 10-point scale: Late homework **must** be turned in by **5 PM** Friday, and will **not** be accepted after that time. 3 points (of the 10) will be deducted from late homework.

The first homework assignment is to complete the Concept Quiz on the course homepage. Full credit will be given for this assignment if the Quiz is completed before the deadline, regardless of the number of questions answered correctly.

End-of-term Project (15%)

Students will work in groups of two or three. Each group will choose a topic for an end-of-term project. Each group will be required to create an advertisement for an everyday item, in which the chemistry of that item is described. Projects cannot duplicate topics chosen by another group or presented during lecture.

The format of the project is entirely up to each group, although the project must incorporate some form of media. You may create a video, a website, a powerpoint presentation, or an audio file. You may also write a print advertisement on the topic, although the ad must include images (as the media component). The science content in each advertisement must be accurate, and all media must be appropriately cited (in an accompanying reference list). Students should take care to avoid copyright violations.

In addition to the advertisement, each group must produce an approximately 5 page paper describing the science associated with the everyday item. It is expected that there will be duplication between content in the advertisement and the accompanying paper. The paper is expected to include more detail than would be appropriate for the advertisement.

An outline will be due at the end of week 6. Each group will be required to post a weekly blog entry to the course website. These entries should begin in week 5, and should include a brief summary of the group's progress that week, identifying each member's contribution. An entry must be submitted even if no progress was made that week. Final projects must be submitted to the course website by Monday, June 2 (week 10), at 11:59 PM. Additional information about the project will be provided later in the term.

Participation (10%)

There will be two, equally weighted components to your participation grade. (1) Each student will be assigned a personal response device (“clicker”) to use this term. Full credit will be given for responses to at least **75% of the questions asked** during the course of the term. Your grade will NOT be based on the correctness of your answers; only that you submit an answer. If you are unable to attend your regular lecture on a given day, you are welcome to attend the other section; just let the instructor know which clicker you are using that day. (2) A discussion board will be accessible on the Bb Vista website for this class. Over the course of the term, between 5 and 10 discussion topics will be posted. These topics will provide the basis for the discussion. Each topic will remain accessible for **two weeks only**. Each student must submit posts to at least **3 different discussion topics** over the course of the term. Each post must include a complete and individual thought; simple agreement with a previous posting will not count towards your total.

Final grades will be determined according to the following scale, although the instructor reserves the right to make adjustments to the scale, if necessary.

A+: 97 – 100

A: 93 – 96

A-: 90 – 92

B+: 87 – 89

B: 83 – 86

B-: 80 – 82

C+: 77 – 79

C: 73 – 76

C-: 70 – 72

D+: 66 – 69

D: 60 – 65

Cheating:

While collaboration on homework questions is encouraged, direct copying of answers from another student, the textbook or the web is not permitted and will result in a zero for that assignment. Any cheating during an exam will result in a score of zero for the exam. Using the clicker of another student to answer questions is an academic integrity violation (it represents earning points for someone else) and is prohibited. Any serious or repeated offenses will be reported to the University.

Disability Services:

Students with disabilities who wish to request accommodations and services at Drexel University need to present a current accommodation verification letter (“AVL”) to the instructor before accommodations can be made. AVL's are issued by the Office of Disability Resources (ODR); <http://www.drexel.edu/oed/disabilityResources/>.

Course Outline:

Week	Tentative Topics	Textbook Chapter
1 (4/1, 4/3)	fortune teller fish, diet coke/mentos (scientific method)	1, 2, 7.4, 12.9
2 (4/8, 4/10)	water (boiling, phase changes); glowsticks, fireworks (spectrum of light, excitation/emission of light); smoke detectors (radioactivity)	3, 4, 5, 8
3 (4/15, 4/17)	radon, nuclear power (radioactivity); global warming	5, 10, 16
4 (4/22, 4/24)	global warming; water purifiers, detergents (polarity)	7, 10, 16
5 (4/29, 5/1)	ice melting blocks (specific heat); hot packs/cold packs (reactions producing/using energy)	8, 9
6 (5/6, 5/8)	air bags (reactions producing gas); ozone hole (catalyst); sunscreen (organics)	9, 12
7 (5/13, 5/15)	acid rain (acids/bases); sports drinks (salts)	10
8 (5/20, 5/22)	batteries, fuel cells (oxidation-reduction); plastics, recycling (polymers)	11, 12
9 (5/27, 5/29)	food (organics)	13
10 (6/3, 6/5)	food (organics); drugs (organics)	13; 14
Finals	Final Exam due	