

CHE 128 – Basic Chemical Concepts Course Syllabus* for Fall 2011

Course Web Page http://condor.depaul.edu/~qshelby/AY11_12/A11_CHE128/CHE128Default.html

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Course Meetings MW from 9:40 am – 11:10 am, and F 9:40 am – 10:40 am
 in McGowan South 104

Texts, Software, and Calculator

- *Introductory Chemistry*; Tro, N. J. 4th ed., Pearson/Prentice Hall, Upper Saddle River, New Jersey, 2011 ISBN: 978-0-321-68793-7
- *Introductory Chemistry – Selected Solutions Manual for Introductory Chemistry*; Tro, N. J.; Johll, M. E, ISBN 978-0-321-73018-3
- Non-graphing, non-programmable calculators are required for exams and recommended for lab. Suggested models include:
 - TI-30X family of calculators (available at the bookstore)
 - CASIO fx-260solar or CASIO fx-250HC
- *MasteringChemistry* – Electronic learning module on-line homework system.

Course Overview

Chemistry 128 is designed as a preparatory course for the general chemistry sequence (Chemistry 130-132-134). As such, a variety of topics will be covered to varying degrees of depth. The topics covered in Chemistry 128 include: units and dimensional analysis; general scientific terminology; basics of atomic structure; chemical formulas and dimensional analysis involving chemical compounds; chemical reactions; stoichiometry; chemical bonding and molecular shapes; gas laws; properties of condensed phases; and solution chemistry.

In addition to your gaining an understanding of the topics listed above, a major goal of this course is to develop your problem-solving and critical-thinking skills. The lecture component will give you the opportunity to work through problems starting from first principles and challenge you to fully understand the meaning of your results. These concepts and understandings will be reinforced in the laboratory portion of this course, honing your technical skills with first-hand experience.

Accomplishing the various objectives of this course will require a significant time commitment from you. You should spend approximately three hours outside of lecture for every hour in lecture working on the material for this course. The bulk of this time should be spent working

problems, both those presented in lecture and those suggested from your textbook. Working on problems does not mean that you should read a problem and then immediately look at the solution. This approach will not help you succeed on exams. You are encouraged to look at the solution to a problem only after you have spent a significant amount of time (15 – 20 minutes) attempting to complete the problem on your own.

General Course Objectives

At the completion of this course you will be able to:

1. Convert units in correct significant figures
2. Classify matter as an element, compound, or mixture
3. Describe components of atoms
4. Identify different combinations of elements as different compounds
5. Calculate empirical and molecular formulas for compounds
6. Write balanced chemical equations
7. Identify the limiting reactant in a reaction
8. Identify trends in the periodic table
9. Draw Lewis structures
10. Use the ideal gas law to determine pressure, volume, mole or temperature of a gas
11. Predict intermolecular forces that are present in compounds
12. Calculate the concentration of solutions

Conditions of Enrollment

By enrolling in this course, it will be assumed that you have met the pre-requisite for this course as found in the DePaul University Bulletin at the time of your matriculation. Due to time restrictions, the course instructor cannot cover material that you should already be familiar with prior to taking this course.

Meetings/Attendance

Monday and Wednesday classes are 1 ½ hours long, and Friday classes are 1 hour long. We will meet three times a week – on Mondays and Wednesdays from 9:40 – 11:10 am and on Friday from 9:40-10:40 am. These times will be used for lecture, to discuss homework, review material for exams, and administer exams and in-class assignments. Please remember that you are participants during these hours. It is to your benefit to attend each class meeting, and *you are responsible for all material presented during class*. Attendance is mandatory for all examinations because they cannot be made up at a later date without a valid excuse (see Exams section below). In order to get the most out of each class, you should read the material we will cover prior to coming to class and bring a calculator so that you can participate in class activities.

Reading Assignments/Homework

You are required to read the assigned text materials before class. This enables in-depth discussion of the material, including homework questions and current topics in chemistry. Students are encouraged to ask questions in class and during instructor's and CA's office hours.

On Sundays and Wednesdays, you will have assignments to complete using **Mastering Chemistry** (MC). These assignments will entail learning a number of topics related to the class discussion. The amount of time required for you to complete the assignment will depend on your level of knowledge, so be sure to give yourself plenty of time to complete the assignment

(i.e., starting your assignment the night before it is due will not, in general, give you enough time). There are 19 MC assignments, and only your highest 15 scores will be used when computing your total score in the class. After you purchase MC, follow the procedure below to get registered and start using MC.

To register as an *Mastering Chemistry* user:

- Go to the *Mastering Chemistry* web site: <http://www.masteringchemistry.com/>
- Follow directions listed on the “Mastering Chemistry Handout”
- Course ID: **SHELBYCHE128AUTUMN2011**

Each week, announcements (if any), reading assignments, and a list of suggested problems from your textbook will be posted on our course website, so please check it regularly. These problems *will not be graded*. Rather, these problems are intended to help you understand the course material more deeply and help you prepare for the exams. You should always feel free to work on additional problems in your textbook.

There will also be six **in-class assignments**, which will be given on a regular basis. The lowest score will be dropped. A score of 50% or greater will be equivalent to 100%. A score of less than 50% will result in a zero. You may work on these with the help of the instructor and the course assistant. If you miss a lecture, you are more than welcome to stop by the instructor’s office to obtain a copy of the in-class assignment. However, it will not be graded for points. Also, the instructor will not carry any of the missed in-class assignments to subsequent classes because it is your responsibility to obtain any missed material. *There will be no make-ups for missed in-class assignments.*

Exams

There will be **four midterm exams** on the dates listed in the schedule. Please check the course webpage for the specific objectives for each exam. No supplemental resources may be used during the exams. You will be held responsible for all of the material discussed in class, on MC and the assigned readings from your textbook. While an occasional homework problem might appear on an exam, most exam problems require you to apply what you have learned to more challenging problems so that your mastery of the material (rather than simply its memorization) can be best assessed. All exams are cumulative, and they may include topics from the lab experiments. The lowest midterm exam score will be dropped. After the first day that graded midterm exams have been returned during class, you have one week to appeal possible grading errors *in person with exam in hand*.

All students are required to take the **final exam**, which is scheduled for Friday, November 18th, from 8:45 am to 11:00 am. Final exams will not be returned to you, but you are free to look over your exam in the instructor’s office.

Make-up exams *will not* be given except for reasons that are deemed acceptable by the Dean of Students or that are due to athletic competitions (documentation must be presented at the beginning of the course). Only one of the four midterm exams can be excused, and it must be taken within 3 days of the scheduled exam date. If you must make up the final exam, you must inform the instructor in advance by phone or email; you will typically receive an incomplete grade in the course, and arrangements will be made for you take the final exam as soon as possible.

Exam Rules

All students will be asked to show their DePaul ID (or some form of identification) in order to receive an exam and when turning in the completed exam. The midterm exams must be taken within the time allotted during class. *You may not leave the room for any reason until you have submitted your exam for grading.* There is no talking during exams. *Anyone caught cheating or using a cell phone, pager or other gadget during an exam will receive an automatic score of zero on that exam.*

Academic Integrity

Academic dishonesty and plagiarism are not tolerated at DePaul. You are expected to submit the results that you actually obtained on your own, and to do otherwise would be a violation of the university's academic integrity policy. Violations of the Academic Integrity Policy will be treated on an individual basis, with the sanction imposed ranging from a zero on the assignment to receiving an F in the course. Additional disciplinary actions by university officials may also be taken. You should read and become familiar with the DePaul University Academic Integrity Policy (<http://academicintegrity.depaul.edu/AcademicIntegrityPolicy.pdf>). Cheating, fabrication of data and plagiarism will be handled according to the procedures outlined in the Student and Faculty Handbooks. Copied work of any kind will not be tolerated. Submission of identical work will be given a zero on the assignment and all parties involved will be referred to the Associate Vice President for Academic Affairs and the dean of the student's home college.

Student Services

If you need (or think you may need) accommodations and services for a physical disability, a learning disability or attention deficit disorder, then you are encouraged to contact the PLS Program and/or the Office for Students with Disabilities (Student Center, Suite 370, Phone: 773-325-1677, TTY 773-325-7296) as soon as possible to benefit from their services. Because of the PLS program's confidentiality policy, you must inform your instructor of your participation in the program in order to receive accommodations in the course.

If you develop health or personal issues that interfere with your academic performance, you are strongly encouraged to contact the Dean of Students Office (<http://studentaffairs.depaul.edu/dos/index.html>) and one of their staff members will advocate for you regarding accommodations for missed assignments.

Evaluation

The overall course grade will be determined by the combination of scores indicated below with their relative percentages.

Component	Weight
Exams (best 3 of 4 scores)	60%
<i>Mastering Chemistry</i> Assignments (best 15 of 19)	10%
In-Class Assignments (best 5 of 6)	5%
Final Exam	25%
Total	100%

The following equation will be used to calculate your grade at the end of the quarter:

$$\text{Grade Percentage} = 0.60 * ((\text{SUM of 3 Exams})/3) + 0.10 * ((\text{SUM of 15 MC Assignments})/(15)) + 0.05 * ((\text{SUM of 5 In-class Assignments})/(5)) + 0.25 * \text{Final}$$

Grading Policy

At the end of the quarter, individual grades will be set according to the total grade percentage scale:

Grade	Percentage
A	92.5 – 100
A-	89.5 – 92.4
B+	86.5 – 89.4
B	82.5 – 86.4
B-	79.5 – 82.4
C+	76.5 – 79.4
C	72.5 – 76.4
C-	69.5 – 72.4
D+	66.5 – 69.4
D	59.5 – 66.4
F	Below 59.5

Incomplete Grades

Grades of Incomplete are granted only in cases of medical emergency or other highly unusual emergency situations. If such a situation should occur and you wish to request an incomplete grade, please inform the instructor as soon as possible. Please note that University guidelines require that you must be earning a passing grade and that you should have completed most of the course at the time of your request. Incompletes revert to an F if they are not resolved within one quarter.

Study Suggestions

The following are only suggestions and should not be interpreted as a guarantee of earning an A grade in this class. You are encouraged to read the assigned chapter sections before we are to cover them in class. After each class (while the concepts are still fresh in your memory), review your notes and work on MC assignments and the suggested questions from the text that correspond to the topics covered that day. Please bring questions to the next class or send them to the instructor or CA by email if material is unclear. *Repetition is often key to understanding, remembering, and applying concepts.*

Academic Courtesy

The use of cell phones and beepers is not allowed in class. *Anyone caught using one of these gadgets during an exam will receive an automatic score of zero on that exam.* Please turn off the sound on cell phones and pagers and keep classroom chatter and eating noises to a minimum. Additionally, you should plan to arrive on time and remain throughout the lecture to avoid disrupting the class.

Tentative Lecture Schedule for CHE128

All readings are from the Tro text.

DATE	TOPIC	CHAPTER(S) IN TEXT	MC HMWK (Due 11:59 pm)
Sept 7	Placement Exam		
Sept 9	Scientific notation, sig figs	2.1 – 2.4	Intro & #1 (Sun, 9/11)
Sept 12	Units of measurement, conversions	2.5 – 2.9	
Sept 14	Matter, physical and chemical properties	2.10 – 3.7	#2 (Wed 9/14)
Sept 16	Energy, heat capacity	3.8 – 3.12	#3 (Sun 9/18)
Sept 19	Atoms, protons, neutrons, electrons	4.1 – 4.8	
Sept 21	Isotopes, compounds	4.9 – 5.5	#4 (Wed 9/21)
Sept 23	Nomenclature	5.6 – 5.8	#5 (Sun 9/25)
Sept 26	Exam 1		
Sept 28	Inter-converting moles and grams	5.9 – 6.4	#6 (Wed 9/28)
Sept 30	Mass percent, empirical formulas	6.5 – 6.8	#7 (Sun 10/2)
Oct 3	Chemical equations	6.9 – 7.3	
Oct 5	Solubility, chemical reactions	7.4 – 7.9	#8 (Wed 10/5)
Oct 7	Classifying chemical reactions	7.10 – 8.2	#9 (Sun 10/9)
Oct 10	Exam 2		
Oct 12	Limiting reactant, theoretical or percent yield	8.3 – 8.7	#10 (Wed 10/12)
Oct 14	Atomic orbitals	9.1 – 9.5	#11 (Sun 10/16)
Oct 17	Electron configurations, periodic trends	9.6 – 9.9	
Oct 19	Lewis structures, molecular shapes	10.1 – 10.7	#12 (Wed 10/19)
Oct 21	Electronegativity, polarity, kinetic theory	10.8 – 11.2	#13 (Sun 10/23)
Oct 24	Exam 3		
Oct 26	Boyle's Law, Charles's Law	11.3 – 11.6	#14 (Wed 10/26)
Oct 28	Avogadro's Law, Ideal Gas Law	11.7 – 11.8	#15 (Sun 10/30)
Oct 31	Standard temperature and pressure	11.9 – 11.10	
Nov 2	Intermolecular forces	12.1 – 12.4	#16 (Wed 11/2)

Nov 4	Phase changes	12.5 – 12.6	#17 (Sun 11/6)
Nov 7	Exam 4		
Nov 9	Homogeneous mixtures	12.7 – 13.4	#18 (Wed 11/9)
Nov 11	Solution concentration	13.5 – 13.7	#19 (Sun 11/13)
Nov 14	FP depression, BP elevation	13.8 – 13.10	
Nov 18	Final Exam (8:45 am – 11:00 am)		

ALL EXAMS WILL BE CUMULATIVE.

*This syllabus provides procedural details and a tentative outline of the material in the course. In this document, “you” refers to CHE128 students. Any situation not covered in this document will be handled at the discretion of the instructor.