

Truman College
Chemistry 203-TUV
Spring 2013

Instructor -

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Office Hours: Monday & Wednesday 11:00am – 1:00 pm
Tuesday & Thursday 4:00 – 5:45 pm

Prerequisites:

Grade of C or better in Chemistry 201 and in mathematics 140 or 143.

Course Objectives:

The scientific as well as the industrial communities expect their professionals to not only be able to handle chemical reactions but also predict whether the reaction is feasible to proceed, whether the reaction reaches equilibrium and how to control a reversible reaction. Furthermore, students are expected to be able to determine the rate of any chemical reaction as well as predict its mechanism. Students will meet these expectations through classroom instructions and activities in which basic concepts involving recognizing properties of reacting species, predicting reaction pathways and performing related calculations. In laboratory activities, students are introduced to the basic lab skills, collection and evaluation of experimental results, data analysis, and formulating conclusions.

Student Learning Outcome :

1. Recognize the different intermolecular forces and their role in phase changes.
2. Identify the types and properties of mixtures, and perform calculations involving the conversion between the different units of concentration.
3. Recognize transition metal coordination compounds.
4. Perform calculations involving reaction rates, identify reaction mechanisms and derive rate laws.
5. Write the expression for the equilibrium condition of a reaction. Identify acids and bases, their equilibrium, and ionic equilibrium.
6. Categorize standard functions of enthalpy, entropy, and free energy and their applications to different systems including electrochemistry.

Attendance -

Class meets Tuesday & Thursday in room 3162 @ 6:00 – 9:40 pm. Attendance will be taken during class. Regular attendance is expected and is essential for good course performance. Students who will be absent for three class periods, will be administratively withdrawn from the class. Students who arrive late by 20 minutes or more or leave early (before the class dismissal) will be considered absent.

Textbook: General Chemistry: Principles and Modern Applications, Petrucci et.al., 2012, Custom Edition for Truman College, ISBN-13: 978-1-256-65952-5
Mastering Chemistry Homework Access Code

Lab Handouts will be posted on Blackboard

Calculator: A calculator with scientific and logarithm functions is recommended.

Examinations - There will be total of ***four (4)*** examinations.

Exam Notes:

Students who will not attend the final exam will be given a grade of “F” for the course (fail the course). Those who will have a University recognized excuse will be given an incomplete grade (I), which will be changed to a failing grade (F) if they don’t complete the final exam before the deadline set by the university. Please consult student- handbook and your advisor regarding this matter.

Quizzes – There will be one or more quizzes covering every topic.

Problem Sets -

There will be one or more problem sets for each topic we cover.

Each set consists of selected problems found at the end of each chapter. These sets are web based assignments. Here are the instructions to how you can log into your account:

1. Go to **http://www.masteringchemistry.com**
2. Log in as follows:
 - a. **username: use your student.ccc.edu email address as username**
 - b. **Password: create your own password according to the instructions of masteringchemistry associated with the textbook or sent to you when you purchased masteringchemistry access code.**
 - c. **Use the following class code: CHEM203TUVS2013**
3. Follow instructions until you are logged in. There is a grace period after which you would need to purchase the access code. Once you are able to access the assignment you want to work with, the problems will be displayed when clicking on the corresponding link.
4. When working on numerical problems, you need to keep a close eye on the number of significant figures.

Grading: 90% and up is A, 80-89% is B, 70-79% is C, 60-69 is D, Below 60 is F

Exams	40%
Final Examination	20%
Quizzes	10%
Problem Sets	10%
Laboratory	20%

Academic Dishonesty

Academic dishonesty is a serious offense, which includes but is not limited to the following: cheating, complicity, fabrication and falsification, forgery, and plagiarism. Cheating involves copying another student’s paper, exam, quiz or use of technology devices to exchange information during class time and/or testing. It also involves the unauthorized use of notes, calculators, and other devices or study aids. In addition, it also includes the unauthorized collaboration on academic work of any sort. Complicity, on the other hand, involves the attempt to assist another student to commit an act of academic dishonesty. Fabrication and falsification, respectively, involve the invention or alteration of any information (data, results, sources, identity, and so forth) in academic work. Another example of academic dishonesty is forgery, which involves the duplication of a signature in order to represent it as authentic. Lastly, plagiarism involves the failure to acknowledge sources (of ideas, facts, charges, illustrations and so forth) properly in academic work, thus falsely representing another’s ideas as one’s own.

- **Examinations:** You are expected to work alone. The instructors will employ statistical software to examine student answer sheets to identify copying on exams – cheating will not be tolerated.
- **WebAssign (homework):** You are expected to complete WebAssign homework alone.

- **Laboratory:** Data collection is a group activity (2 or 4 students). All data is expected to be collected in the laboratory. Use of data not collected by the author of the report, use of data not acquired during the lab period, and use of fabricated data will be considered academic misconduct. Case study, pre-lab, and lab questions may be discussed in groups, but must be answered individually.

Penalties for Academic Dishonesty

In individual cases of academic dishonesty, sanctions may range from a written warning to a failing grade for the course; the severity of the penalty is left to the discretion of the instructor. Additional sanctions may be imposed up to and including dismissal from the City Colleges when circumstances warrant it.

Standards of Conduct

City Colleges of Chicago students are expected to conduct themselves in a manner which is considerate of the rights of others and which will not impair the educational mission of the College. Specifically, all students assume an obligation to conform to Board Rules, the statement of Student Rights and Responsibilities and the following policies.

“The Standards of Conduct applies and discipline may be imposed for conduct which occurs on College premises, at off campus recreational or instructional sites, at any College-sponsored event, or at any College supervised or provided activity, transportation or facility.”

A copy of these Board Rules governing student conduct is available from the Dean of Student Services. Misconduct for which students are subject to College discipline, up to and including expulsion from the College, falls into the following categories:

1. All forms of dishonesty such as stealing, forgery, alteration or improper use of college documents, records, or identification cards with intent to defraud, and knowingly furnish false information to the college.
2. Intentional obstruction or disruption of teaching, research, administration, disciplinary proceedings or other college activities.
3. “Physical abuse, verbal abuse, threats, intimidation, harassment, hazing, coercion, and/or other conduct which threatens or endangers the health or safety of any person or creates a hostile working or learning environment which includes but not limited to any telecommunication devices.”
4. “Carrying or possession of unauthorized weapons, ammunition or other explosives, or creating a clear and present danger to persons or property by the misuse of combustible or biological materials.”
5. Theft or damage to college premises or damage to property of a member of the college community on institution premises.
6. Unauthorized or inappropriate use of City Colleges facilities and resources.
7. Failure to comply with college officials acting in the performance of their duties.
8. Violations of the following City Colleges of Chicago Policies; (1) Academic Integrity, (2) Policy on Equal Opportunity in Employment (EEO), Programs, Services and Activities, (3) Drug and Alcohol Free Campus Policy, (4) Safety and Security Policy, (5) Responsible Computer Use Policy and (6) Smoke Free Policy, (7) Hat Policy.
9. Retaliation against any students, program participants, employees or other persons who made complaints or who cooperate in the investigation of EEO matters and complaints, Student Grievances and/or Student Disciplinary matters.

For more details about academic dishonesty and student conduct, please consult the Student Policy Manual:

<http://www.ccc.edu/Files/studentpolicymanual.pdf>

Tentative Lecture Schedule

Dates	Chapter	HW Due Date	Quizzes
Jan 15 T Jan 17 Th Jan 22 T	19. Thermodynamics	Check Mastering chemistry	Quizzes are assigned online
Jan 24 Th Jan 29 T Jan 31 Th	15. Chemical Equilibrium		
Feb 05 T Feb 12 T Feb 14 Th	16. Acids and Bases		
Feb 19 T	Exam 1 Chapter 15, 16, 19	Multiple Choice and Free Response Questions	
Feb 19 T Feb 26 T Feb 28 Th	17. Buffers	Check Mastering chemistry	Quizzes are assigned online
Mar 05 T	18. Ionic Equilibria		
Mar 12 T	Exam 2 Chapters 17-18	Multiple Choice and Free Response Questions	
Mar 12 T Mar 14 Th Mar 19 T	20. Electrochemistry	Check Mastering chemistry	Quizzes are assigned online
Mar 19 T Apr 02 T Apr 09 T	14. Rate of Reaction		
Apr 11 Th Apr 16 T	24. Coordination Compounds		
Apr 23 T	Exam 3 Chapters 14, 20, 24	Multiple Choice and Free Response Questions	
Apr 23 T Apr 25 Th Apr 30 T	25. Nuclear Reactions	Check Mastering chemistry	Quizzes are assigned online
May 02 Th	Review for Final Exam		
May 07 T	Full Year Extra-Credit Exam	American Chemical Society (ACS)- All Multiple Choice Exam	
May 09Th	Final Exam Cumulative All Chapters covered	American Chemical Society (ACS)- All Multiple Choice Exam	

Truman College

Laboratory Outline for Chemistry 203

Objectives:

1. To introduce the students to laboratory experimentation.
2. To increase the student's knowledge of the capabilities and limitations of measurements.
3. To familiarize him/her with a variety of chemical reactions and the equations used to describe them.
4. To give him/her experience in collecting and processing data.

Lab Rules:

1. Wear protective goggles or glasses at all times in the laboratory work areas.
2. Children are **not** allowed to stay in the laboratory.
3. No drinking or eating is allowed in the laboratory.
4. Wear a laboratory apron to protect your clothing.
5. After completing the experiment, clean and put away your glassware and equipment. Clean your work area and make sure the gas and water are turned off.
6. Dispose of insoluble waste such as filter paper, litmus paper, matches in the wastebasket, not in the sink. Dispose broken glasses in the broken glasses boxes. Dispose all other solid chemicals as directed by your instructor. Empty nontoxic liquids into the sink and wash them down with water. Pour all the toxic liquids into the waste bottles provided.
7. Do not take reagent bottles to your laboratory work area. Use test tubes, beakers, or paper to obtain chemicals from the dispensing area. Take small quantities of reagents. You can always get more if you run short.
8. Check carefully the label on each reagent bottle to be sure you have the correct reagent. The names of many substances appear similar at first glance.
9. To avoid possible contamination, never return unused chemicals to the reagent bottles.
10. Do not insert medicine droppers into reagent bottles. Instead pour a little of liquid into a small beaker.
11. Be neat in your work; if you spill something, clean it up immediately.
12. Wash your hands anytime you get chemicals on them and at the end of the laboratory period.
13. Keep the balance and the area around it clean. Do not place chemicals directly on the balance pans; place a piece of weighing paper or a small container on the pan first, and then weigh your material. Never weigh an object while it is hot.
14. Do not heat graduate cylinders, burets, pipets, or bottles with a burner flame.
15. Do not look down into the open end of a test tube in which the contents are being heated or in which a reaction is being conducted.
16. Do not perform unauthorized experiments.
17. Students must work alone, unless otherwise indicated by the instructor.

Lab Reports: There will be **TWO** formal Lab reports during the course of the semester. Sample Lab reports will be provided. The experiments for which a formal report to be submitted are indicated below. Each of the Formal Lab reports is worth twice the points of the in class ones.

1. Study the experiment carefully before coming to class, so that you don't have to spend a lot of time finding out what the experiment is all about. You **must** complete all calculations and problems for the "Advance Study Assignment" section of each experiment before you come to the lab. Your work will be collected before the experiment starts.
2. Ten (10) points will be deducted if you let someone copy your data or any part of the report. It is considered cheating to allow anyone to copy your lab report and a zero grade will be entered for such action.
3. The report must be clear, clean, and neat.
4. The pages must be numbered and stapled together in a **numerical order**.
5. **Lab reports are due a week after the completion of the experiment. NO LATE lab reports will be accepted. A zero grade will be entered for every missed lab report. In the case of an absence, arrangements must be made for the report to be handed in on time with consultation with the professor.**

Make-up Experiments: Positively NO missed experiments can be made up!!!

Experiments:

Tentative Date (Spring 2013)

** . Check-In, Lab Safety

Equilibrium: Le Chatelier Principle (**Formal Lab Report**) 02-07

Acid-Base Titration 02-21

Titration Curves and Buffers (Handout) 03-07

Voltaic Cell Measurements (**Formal Lab Report**) 03-21

Rates of Chemical Reactions (II) 04-04

Coordination Compounds (Handout) 04-18