

**Chemistry 1046
Course Outline
Spring 2014**

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Section 01	MWF 9:00 - 9:50	
Exams Tuesdays	8:00 – 10:00 PM	Tuesday -Feb. 4, Mar. 4, & April 8
Office: CP 302	Office hours	MW 10:00-11:30 T by appointment

Prerequisites: CHM 1045 and College Algebra

Corequisite: CHM 1046L laboratory

Text: Burdge, Chemistry, 3ed

I-Clicker Personal Response Transmitter required - purchase at the bookstore

McGraw Hill Connect – If you don't already have license (good for 1 year), purchase online or at bookstore. Course

ID: **CHM 1046 Spring 2014 – sec. U01 and U05F. Be sure and select Burdge, 3rd ed for the Connect Text**

Bring a simple scientific calculator with a logarithm key to each class session and exam. **Graphing calculators will not be allowed for exams.**

Chapters 12 to 18 will be covered in this course. Sections of the text added or omitted will be announced in class.

The topics listed below are intended to be a general focus of each chapter. More detailed information will be given in lecture and on my web site.

Unit 1 - Intermolecular Attractions and Kinetics

Chapter 13: Solutions

Solution formation, heats of solutions, factors affecting solubility, concentration units, & colligative properties

Chapter 14: Chemical Kinetics

Reaction rates, rate law, reaction order, determining the rate law, integrated rate law, half life, mechanisms, the Arrhenius equation, and catalysis.

EXAM 1 – Tuesday February 4, 8:00 PM

Unit 2 - Aqueous Equilibria and its Applications: Acids and Bases

Chapter 15: Chemical Equilibrium

The equilibrium state, K_c , K_p , using the equilibrium constant, factors affecting equilibrium, catalysis, Le Chatelier's Principle, and equilibria calculations.

Chapter 16: Acids and Bases

Acid-base theory, weak acids and bases, Lewis Acids, pH scale, solutions of strong acids and bases. percent dissociation, K_a and K_b , calculating equilibrium concentrations, and the acid-base properties of salts.

EXAM 2 – Tuesday March 4, 8:00 PM

Unit 3 - Thermodynamics, & Electrochemistry

Chapter 17: Aqueous Ionic Equilibrium

Common ion effect, buffer solutions, & titration, solubility equilibria, K_{sp} , selective precipitation, and qualitative analysis.

Chapters 18: Free Energy and Thermodynamics

Enthalpy, entropy, spontaneous processes, free energy, free energy changes for reactions, and free energy as related to chemical equilibrium.

EXAM 3 – Tuesday April 8, 8:00 PM

Unit 4 – Electrochemistry, Nuclear Chemistry & Coordination Chemistry (if time permits)**Chapter 19:** Electrochemistry

Balancing redox equations, electrolysis, galvanic cells, cell potential and Free-Energy changes, reduction potentials, the Nernst Equation and concentration cells.

Chapter 20: Radioactivity and Nuclear Chemistry

Nuclear reactions, radioactivity, decay rates, fission, and fusion.

Chapter 25: Organic Chemistry

Nomenclature, isomers, geometry, functional groups, and simple reactions of organic molecules.

OR

Chapter 22: Transition Metals and Coordination Compounds

Properties of transition metals, coordination compounds, structural isomerism, and bonding in coordination compounds.

Final Exam (Tentative date: April 24, 2:15-4:45 PM)

Final exam will be confirmed

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How can you do well in this course?

I want all of you to succeed in this course. However, this is going to take a lot of hard work. Plan on studying 2-3 hours for every hour of lecture. ***This is not a “listen and learn” type of course. Most of the learning will happen later, while reviewing notes, your textbook and, most importantly while solving problems.*** In this course you will find yourself frequently calling upon mathematical skills that you thought you had left behind for good a long time ago. If you feel the need, please go back and review your math skills.

Your textbook is a very important tool. Stay ahead of the material (in the worst case, stay on top of it) and lectures will make more sense to you this way. Learning chemistry is a collaborative effort – so interact with your instructor, TA, and classmates as often as possible. During a lecture, if you have a question please bring it up (there are no dumb questions, I guarantee there will be several other people with the same question, who are too afraid to ask). However, please be respectful and raise your hand, rather than blurting out the question.

Other resources

- Work together in small groups outside of class or at least, find a classmate to study with. This will help you tremendously.
- Take advantage of the weekly CHEMPAL sessions that will be available soon.
- During my office hours I am willing to work with you one-on-one, so please feel free to come with any questions you have. It will be more beneficial to you if are prepared and come with questions rather than expect me to explain everything to you. If my office hours do not work for you e-mail me for an appointment. If you have done all the problems at the end of the chapter in your book and feel the need for more practice, come see me and I will be glad to provide you with extra worksheets.
- The chemistry help desk in CP-378 is staffed with TAs who will be able to help answer you questions.

CHEMPAL – CHEMPAL is Chemistry Peer Assisted Learning. This is free tutoring available to everyone. There will be several sessions each week ***tentatively*** beginning during the second week of the semester. The location and timing of these sessions will be available on Blackboard. If you attend 5 or more sessions during the semester, you will be awarded an extra 5 points. You are welcome to go to as many sessions as you want – in fact you can attend multiple sessions during the same week. **However, please note that if you attend more than 1 session during the same week, only one session can count towards this credit.** If you attend less than 5 sessions, you will be awarded 1 point for every session you attended, however please remember only one session per week counts towards the credit. **You must arrive on time, stay for at least 45 minutes and actively engage with the material to receive credit. If you are disruptive, the preceptor will excuse you and you will not receive credit for that session.** Take advantage of this free tutoring service. Please keep a record of dates and times you attended the sessions.

Attendance and decorum: Attending lecture is essential to help you understand the vast amounts of material we will cover over the course of the semester. Do not expect to consistently miss class and still do well. ***Please be informed that if you choose to be absent from class, it will be your responsibility to keep up with LearnSmart and MGC***

assignments and any other announcements. Any in-class quizzes given on the day of your absence cannot be made up.

Please remember to turn off your cell phone or pager before coming to class. Please behave courteously in class. Talking on the cell phone during class, talking incessantly during class and any other kind of disruptive behavior will not be tolerated. **I WILL NOT HESITATE TO EXCUSE DISRUPTIVE STUDENTS FROM LECTURES. If necessary, grading penalties will be assessed.**

Exams: The expected date for each exam is given on the attached calendar, but these dates may vary. The date will be confirmed at least one week prior to the day of the exam. **All semester exams will be conducted on the designated date and time.** The three semester exams will be worth 100 points each. The final exam will be comprehensive and will be worth 200 points. The final exam will **NOT** be a resurrection. The Final exam will be held Thursday, April 24 from 2:15-4:45PM. The date, room, and time will be confirmed later in the semester.

During exams you are only allowed to keep pencils, erasers, and a scientific non-graphing calculator with you. You have to leave all other material in the front of the class. If you need scratch paper it will be provided. **Graphing calculators will be confiscated.** Exam scores will be posted on Blackboard. **If your exam score is not posted,** please come to see me with a valid photo ID in a timely fashion.

YOU WILL BE REQUIRED TO PROVIDE A PHOTO ID AT EACH EXAM.

You cannot keep your cell phones or any other electronic devices with you during the exam. If you are found with one it is grounds for academic misconduct.

THERE WILL BE NO MAKE-UP EXAMS GIVEN FOR ANY REASON.

Academic misconduct: *Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook. Cheating is unfair to your honest classmates and absolutely will not be tolerated.* The first such infraction will be dealt with to the fullest extent permissible by the university. Cheating includes (but is not limited to) any form of inter-student collaboration on exams or quizzes, use of prohibited materials or devices during exams (*viz. a graphing calculator, CELL PHONE*), copying or distribution of quiz or exam answers prior to the test, and plagiarism.

http://online.fiu.edu/exams_academic_misconduct.html

In-Class participation: Class participation will be evaluated using the "Clicker", which will be used in most class periods. As long as you use the clicker with you 80% of the time during a class period and 80% of the time during the semester, you will receive the full 10 points.

- Please remember to bring your clicker to class everyday.
- Please **register your clicker at iclicker.com**. Please ensure that your Panther ID is entered correctly. Failure to register your clicker **or synchronize** your clicker will adversely affect your points.

Please note that voting with a clicker of a person who is not present in the class at that time of the clicker quiz can be grounds for academic misconduct. Grading penalties will be assessed.

HOMEWORK

There will be different kinds of homework assigned this semester.

- Prep Quizzes will be assigned in Learn Smart for you to complete **BEFORE** coming to lecture.
- Connect homework assignments will be assigned each day and are to be completed **AFTER** each lecture. These will be typically due by the before the next class.

Please login to blackboard and follow the instructions to register for these.

Prep Quizzes: Each day before you come to class you will have completed a Prep Quiz covering that day's lecture. These prep quizzes will be made available on Friday of each week and based on the projected lecture topics. These are designed to give you advance work on each topic and will be based on the Electronic Text included with the Connect site (Burdge, 3ed.) You will have to read the topics before taking the quiz.

The Prep Quizzes will be worth 30 points toward your grade.

If you score 80% of the total points, you will receive all 30 points.

If you earn less than 80% your points will be calculate as follows: $PrepQuizScore = YourPercent * 30\text{ points}$

You can complete these units as often as you would like in order to increase your grade. I keep your highest grade.

Post-lecture Connect quizzes: Homework Score: during the semester, homework assignments will be given on the Connect site. You will submit these assignments for a grade. These assignments will be worth 30 points. Three unannounced in-class homework quizzes, worth 5 points each, will be given during the semester. Selected questions from the homework will be used as exam questions. Your score on quizzes will be combined with **Connect** scores as your homework score

Connect Homework: Connect sections will be assigned as the semester progresses. Please register for Connect through Blackboard.

- You have entered your correct panther ID and full name.
- The course ID for this section is: CHM 1046 – Spring 2014

Your homework score can be calculated by the formula:

$$- \left[\frac{\text{Sum your Connect Points}}{\text{Total Connect Points available}} * 30 \right] + Q_1 + Q_2 + Q_3 = \text{Homework Score}$$

Please ensure that you are signed up correctly as this would ensure that you get a grade for your work at the end of the semester. You can complete these units as often as you would like in order to increase your grade. It keeps your highest grade. These assignments will also be opened for practice exercises later in the semester.

Homework quizzes will be given on a **Blackboard** site for practice as well.

Course Grade is computed as follows:

Graded Item	Points	Your Total Points	Grade
Exams	300	≥ 522 points	A (>90%)
Homework	40	≥ 464 points	B (>80%)
MGC	30	≥ 377 points	C (>65%)
Class Particip.	10	≥ 290 points	D (>50%)
Final Exam	200	< 290 points	F (<50%)
Total Points	580		

There is no extra credit being offered in this class outside that mentioned in this syllabus.

CHM 1046

Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Jan. 6 Ch. 12	7	8	9	10	11	12
13 Last day to add	14	15	16	17	18	19
20 ML King Day	21	22 Ch. 13	23	24	25	26
27	28	29	30	31	Feb. 1	2
3	4 Exam 1 (8:00-10:00 pm)	5	6	7	8	9
10 Chapter 14	11	12	13	14	15	16
17	18	19	20	21 Ch. 15	22	23
24	25	26	27	28	Mar. 1	2
3	4 Exam 2 (8:00-10:00 pm)	5	6	7	8	9
10 Spring Break	11 Spring Break	12 Spring Break	13 Spring Break	14 Spring Break	15 Spring Break	16 Spring Break
17 Last drop day	18	19 Ch. 16	20	21	22	23
24	25	26	27	28	29	30
31	April 1	2	3	4	5	6
7 Ch. 17	8 Exam 3 (8:00-10:00 pm)	9	10	11	12	13
14 Ch. 18	15	16	17	18 Classes End	19	20
21 Final	22 Exam	23 Week	24 Final Exam 2:15-4:45 pm (will be confirmed)	25	26	27

This schedule is intended only as a guide and is subject to change during the course of the semester.

I reserve the right to change this syllabus, the exam dates or the material to be included on a particular exam during the course of the semester. I will attempt to give students one week advance notice of the new exam date if there are changes.

Changes will be announced in class and posted on blackboard.