

**Chemistry 1045**  
**Course Outline**  
**Fall 2013**

Dr. Palmer Graves	Phone: (305) 348-3496	e-mail: course mail (Blackboard)
Section 3 & 7	MWF 12:30 - 1:45 PM	<b>Office hours:</b> MW 2:00 – 3:00 PM or by appointment
Web page:	www.fiu.edu/~gravesp	<b>Office location:</b> CP 302

Co-requisite: CHM 1045L (the laboratory class is designed to help you engage with the concepts and understand them).

Text: "Chemistry", 3rd ed., Burdge ISBN: 0078128196. This is the ISBN for the hard-cover text AND Connect plus.

McGraw Hill Connect and Learnsmart: are required and included with the book at the bookstore and Booksmart. **Access to Learnsmart and Connect quizzes will be through Blackboard. Please log into blackboard for instructions to register for and get access to connect (you will need to have the code that came with the book or one you purchased online handy).**

Molecular model kit is recommended

I-Clicker personal response pad; "Clicker" available at the bookstore and Booksmart (107<sup>th</sup> Ave and SW 16<sup>th</sup> street)

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

I recommend the Sharp EL 531 calculator. It is cheap and very good.

Chapters 1 to 11 should 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.

Class notes are available on the blackboard site for download.

**Unit 1 - Fundamentals of Chemistry**

- Chapter 1: Chemistry: The central science  
Elements, Periodic Table, chemical properties, measurement, derived units, accuracy & precision, sig figs, and calculations using dimensional analysis
- Chapter 2: Atoms, Molecules and Ions  
Conservation of mass, Dalton's theory, atomic structure, the Periodic Table, compounds, mixtures, molecules, ions, bonds, formulas, nomenclature
- Chapter 3: Stoichiometry: Ratios of combination  
Molar mass, percent composition, balancing equations, combustion analysis, stoichiometry and limiting reagents
- Chapter 4: Chemical Quantities and Aqueous Reactions  
Concentration, electrolytes, precipitation reactions, acids, bases, neutralization reactions, redox reactions, and redox titration

**EXAM 1**

**Unit 2 – Thermochemistry, & Quantum Mechanical Model of the atom**

- Chapter 5: Thermochemistry  
Energy, energy changes and conservation of energy, work, enthalpy, calorimetry, heat capacity, Hess' Law, Heats of Formation.
- Chapter 6: Quantum Theory and the Electronic Structure of the Atom  
The Periodic Table, Light, waves, quantum mechanics, orbital shapes, orbital energies in multi-electron atoms, electronic configurations, electronic configurations and the Periodic Table, and anomalous configurations.
- Chapter 7: Periodic Properties of the Elements  
The modern periodic table, effective nuclear charge, periodic trends, electronic configuration of ions and ionic radius.

**EXAM 2**

**Unit 3 – Periodic Properties and Bonding and the Ideal Gas Law**

- Chapter 8: Chemical Bonding I: Basic Concepts  
Types of bonds, Electronegativity and Polarity, Lewis structure, resonance, formal charge, octet rule, exceptions to the octet rule and Bond Enthalpy.
- Chapter 9: Chemical Bonding II: Molecular Geometry and Bonding Theories  
VSEPR, geometry and polarity, VBT and hybridization, and MO theory
- Chapter 10: Gases  
Gases, gas pressure, gas laws, the Ideal Gas Law, Stoichiometric relationships, Dalton's Law, Graham's Law, KMT, diffusion and effusion, and real gases

**EXAM 3**

Chapter 11: Intermolecular Forces and the physical properties of liquids and solids

IM forces, properties of liquids, phase changes, vaporization, vapor pressure, phase diagrams, etc.

**FINAL EXAM** Final exam will be held on Thursday December 12, from 2:15-4:45pm. This date will be confirmed later in the semester.

**Disability Resource Center** provides assistance for students with a disability. I will make accommodations for students with a disability as needed under the advisement of the Disability Resource Center located in GL190.

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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.

***I cannot stress the importance of doing lots of practice problems. I have worksheets on blackboard which can be downloaded at your convenience.*** If you have done all these, all the problems at the end of the chapter in your book, and the CHEMPAL worksheets and still feel the need for more practice, I will be glad to provide you with extra worksheets.

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 a week beginning tentatively Tuesday, September 3rd. **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. **For your own sake please keep track of the dates you went to CHEMPAL.** Later if there is a problem with the points, it will be easier to fix. It will be impossible for me to dig through a semester worth of sign-up sheets to look to see if you attended a session unless you tell me the exact date and time when you attended the session.

***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 the quizzes, Learnsmart assignments, Connect quizzes 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. It will be a resurrection final. **This means that provided you have taken ALL THREE semester exams, your lowest**

**exam grade can be replaced by a percentage of your final.** The Final exam will be held during the week of December 9-13. The actual date 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 and grading penalties will be assessed if the student is found with one during the exam.** Exam scores will be posted on blackboard. **If your exam score is not posted,** please come to see me with a valid photo ID.

**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](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. Your points are determined by your participation and NOT by the correctness of your response.

- Please remember to bring your clicker to class everyday and synchronize it correctly.
- Please register your clicker at iclicker.com. Please ensure that your Panther ID is entered correctly.

**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.**

### **HOMWORK**

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:  $PrepQuizScore = YourPercent * 30\ points$

You can complete these units as often as you would like in order to increase your grade. It keeps 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. Two 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 1045 – Summer 2013

**Your homework score** can be calculated by the formula:

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

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
Learn Smart	30	≥ 464 points	B
Homework	40	≥ 377 points	C
Participation (clicker)	10	< 290 points	F
Final Exam	200		
Total Points	580		

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

### Chemistry 1045 Fall 2013 Calendar

Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Aug 26 <b>Ch. 1</b>	27	28	29	30	31	<b>Sep. 1</b>
2 <b>Labor Day</b>	3 <b>Reg. Ends</b>	4 <i>Ch. 2</i>	5	6	7	8
9	10	11 <i>Ch. 3</i>	12	13	14	15
16	17	18 <i>Ch. 4</i>	19	20	21	22
23	24 <b>EXAM 1</b> <b>8:30-10:30pm</b>	25	26	27	28	29
30 <i>Ch. 5</i>	<b>Oct. 1</b>	2	3	4 <i>Ch. 6</i>	5	6
7	8	9	10	11 <i>Ch. 7</i>	12	13
14	15	16	17 <i>Ch. 8</i>	18	19	20
21	22 <b>EXAM 2</b> <b>8:30-10:30pm</b>	23	24	25	26	27
28	29	31 <i>Ch. 9</i>	31	<b>Nov. 1</b>	2	3
4 <b>Last day to drop</b>	5	6	7	8 <b>Ch. 10</b>	9	10
11 <b>Veteran's Day</b>	12	13	14	15	16	17
18	19	20	21	22 <i>Ch. 11</i>	23	24
25	26 <b>EXAM 3</b> <b>8:30-10:30pm</b>	27	28 <b>Thanksgiving</b>	29 <b>Thanksgiving</b>	30	<b>Dec. 1</b>
2 <b>Ch. 12</b>	3	4	5	6 <b>Last Class</b>	7	8

The Final exam will be held Thursday December 12, from 2:15-4:45PM.

This schedule is intended only as a guide and will be changed during the course of the semester. Changes will be posted to the web and announced in class. I reserve the right to change exam dates and or material to be included on each exam during the course of the semester. I will attempt to give students one week advanced notice for the new exam date if it changes.