

## GENERAL CHEMISTRY 2 (CHM 1046) SYLLABUS

### Section U06: Spring 2019

9:00 – 10:15 am Tuesday & Thursday Parking Garage 5 (PG5): Room 155

**Instructor:** Dr. Sonia M. Underwood

**Office:** CP 330

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**Office Hours:** Tuesday & Thursday from 10:30 am-11:30 am or by appointment

This section of General Chemistry 2 will use the chemistry curriculum *Chemistry, Life, the Universe and Everything*. The curriculum is based on research on learning and designed to help you to learn the fundamental concepts of chemistry. While the approach may be somewhat different from what you are used to, we believe (and have evidence) that you will finish this course with a deeper understanding of chemistry principles, and that you will be able to use this knowledge in subsequent courses. That is, you will learn what you need to know for further study in chemistry and other subjects – for example biological and materials sciences.

#### Co-requisite:

This course has a co-requisite of the lab CHM1046L. General chemistry lab will begin the first week of classes (the week of January 7<sup>th</sup>).

#### Course Materials:

*Text:* An electronic draft version of *Chemistry, Life, the Universe and Everything* (CLUE) by Melanie M. Cooper and Michael W. Klymkowsky will be provided to you at no cost. In addition, you will be given links to on-line textbooks and resources that will be useful. If you have a general chemistry text from a previous semester it will be a useful resource but is not necessary to purchase a new text.

*Clicker Remote:* A remote Clicker is required for this class. You can use either a Clicker or a Clicker-2. The Clicker is cheaper and can be purchased online or from other returning students. In addition, Clickers are available at the bookstore and Booksmart (107th Ave and SW 16th street). You can either purchase it or rent it. If you rent a clicker, please do not return it until the final clicker grades are posted.

*Blackboard:* If you are registered for classes as a FIU student, you can access blackboard by going to [online.fiu.edu](http://online.fiu.edu). The login and password are the same as for your “myFIU” page. If this class does not show up on your blackboard page, please contact UTS at 305-348-2284 to be added to the class.

*Calculator:* A simple scientific calculator with a logarithm key to class and exams. Graphing calculators are *not* allowed.

#### Course Outline: *Chemistry, Life, the Universe and Everything*.

A separate detailed outline of the course material will be provided: we will be studying Chapters 5-9

Chapter 5 Systems thinking

Chapter 6 Solutions

Chapter 7 A field guide to chemical reactions

Chapter 8 How far? How fast?

Chapter 9 Reaction systems

## Learning Outcomes: CHM 1046 Section U06

Students in this course will learn to:

- Explain and model how the existence of atoms leads to the conservation of matter.
- Use appropriate models and theories to describe chemical and physical phenomena.
- Construct representations of chemical species and use them to predict chemical and physical properties.
- Explain how and why the atomic-molecular structure affects the properties of a substance, and vice versa.
- Predict and explain the energy changes associated with interactions of atoms, molecules, and ions.
- How to apply systems thinking to both molecular level and macroscopic systems.
- Identify common types of reactions and predict the products
- Understand the factors that affect the rate and extent of reactions.
- Predict and explain the outcome of coupled reactions.

### Class Philosophy:

In a traditional classroom the flow of information is typically from the instructor to students. While this is a very efficient way to deliver simple information and learn skills (such as numerical problem solving and material to be memorized), it is not a very effective way to learn complex subjects, like chemistry. In order to learn something (well) it is important to think about the concepts you are learning, understand their implications, and when faced with a new problem, be able to be explicitly aware about your assumptions and clarify (for yourself and others) your understanding.

The approach we will take in this class is to ask you lots of questions, have you work in groups during every class period on worksheets/activities, interact with the Learning Assistants (LAs) as they will help facilitate your learning (i.e. they are not here to provide answers, but instead make you reflect on your own understanding), and based on your answers we will provide feedback, more questions – and some answers! While it may seem easier to just tell you what we want you to know, and how to solve problems, we have found that this approach is not very effective at promoting learning. The goal of this class is to help you become a **self directed learner**, and to teach you skills that will stand you in good stead for the rest of your life. Learning how to learn (and how to think) is difficult, and it is understandable if you come to feel a bit bewildered initially. But bear with us – you will learn more, in more depth, than you would in a traditional lecture format.

If you do all the assigned work and keep up with the material, you will find this course to be interesting and rewarding. If not, you will find that the course quickly becomes incomprehensible. You must keep up; it is impossible to recover once you fall behind. The work in this course is university level: it is not enough to recall facts and definitions and solve simple problems. The goal of this course is for you to understand chemical processes on the molecular level - to do this you will need to understand chemical concepts and be able to solve complex problems involving a number of steps.

### A Word About Me:

My role in this course will be to help you understand the concepts and materials in the course. There will be many different methods to accomplish this, many of which will require you to become active participants in the classroom. A typical class period will consist of homework review, clicker questions, group activities, and summary discussion of the material. I welcome questions, and will do my utmost to help you, but in the long run what *you get from this course depends on you*.

### Course Grade Will Be Computed as Follows:

The assessment in this class will consist of:

<i>Graded Item</i>	<i>Points</i>		<i>Total Course Points</i>	<i>Expected Letter Grade</i>
Exams	300		≥ 567 points ( ≥ 90%)	A
Final Exam	150		≥ 504 points ( ≥ 80%)	B
In-class activities (group or individual)	80		≥ 409 points ( ≥ 65%)	C
Out of class activities and homework	100		≥ 315 points ( ≥ 50%)	D
Total Points	630		< 315 points ( < 50%)	F

### Notes:

1. Each class will involve group and/or individual activities and survey questions. This portion of your grade for in-class activities is based on participation and effort. If you miss class, due to fairness of your peers, there will not be an opportunity to receive a grade on the in-class portion for the missed class period. The worksheets from that day will be available on Blackboard, however, you will still be able to (and should) complete the homework assignment for that missed class.
2. For clickers:
  - Please remember to bring your clicker to class every day 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.**
3. Out of class activities (such as surveys, reflection assignments, etc.) and homework will be posted through Blackboard and will be administered through the homework program *beSocratic*. It is your responsibility to keep up with the homework and readings assigned for each class period. Homework activities will be due before each class period and again due to fairness for your peers, the due dates for out of class activities and homework assignments cannot be extended.

### Exams:

The expected date for each exam is shown below, but these dates may vary. **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 worth 150 points. The final exam will be cumulative – it will cover all the material in the course. If it is to your advantage **and** if you make over 70% on the final, the final exam will substitute for your lowest exam grade. The Final exam will be held **Thursday April 25 (2:15-4:45pm)**. This date will be confirmed later in the semester.

#### Rules for exam procedure:

- You will be required to provide a valid photo ID at each exam.
- Cell phones and other electronic devices are not allowed anywhere near you during the exam. If you are found with one, it is grounds for academic misconduct.
- Make sure you turn off your cell phone and stow it away in your backpack. A cell phone that goes off during an exam disturbs other students and therefore grading penalties will be assessed.
- There will be no make-up exams for any reason.
- During exams you are only allowed to keep pencils, erasers, and a scientific non-graphing calculator with you. 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 in a timely manner (***within a week of the scores being posted***). Three tests will be given on the dates and times specified. Note that the tests are given in the evening. You will be notified about the location nearer the test time. If you cannot make it to the exams at the scheduled times, please come see me in person before Friday, January 25<sup>th</sup> 2019 at noon to explain your situation. You will be expected to submit a print out of your weekly class schedule from myFIU with your name, panther ID, email address written on it. So please bring that with you.

### Test days

- Test 1:           **Tuesday February 5 (8:00 – 10:00 pm)**  
Test 2:           **Tuesday March 5 (8:00 – 10:00 pm)**  
Test 3:           **Tuesday April 2 (8:00 – 10:00 pm)**  
Final Exam:   **Thursday April 25 (2:15-4:45pm)**

**CHEMPAL – CHEMPAL is Chemistry Peer Assisted Learning.** This is FREE TUTORING available to everyone. There will be several sessions a week tentatively beginning Monday, January 14<sup>th</sup> 2019. The location and timing of these sessions will be available on blackboard. If you attend 6 or more sessions during the semester, you will be awarded an extra 6 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 6 sessions, you will be awarded 1 point for every session you attended, however please remember only one session per week counts towards the credit. 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 sift 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. **Please note: If you are disruptive, the preceptor will excuse you and you will not receive credit for that session. The preceptor's decision is final in this regard.**

In order to receive credit for a session

- You must arrive on time,
- Put your name and panther ID legibly on the sign-up sheet
- stay for at least 45 minutes and
- and actively engage with the material.

### 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)

**Disability Resource Center (DRC):**

Provides assistance for students with a disability and any accommodations provided for students are done as needed under their advisement. Please register with them well in advance of the first exam.

Before beginning the first class, you should be able to do the following (some of these will be reviewed briefly, but prior knowledge of these concepts is expected). This background knowledge is expected on all exams!

- Use mathematical terms and equations including: algebra, exponential numbers, logarithms, ratio and proportion.
- Use significant figures.
- Convert between English - metric (SI) units.
- Make and read graphs.
- Interpret word problems

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 you one-week advance notice of the new exam date if there are changes. Changes will be announced in class and posted on blackboard.