Introduction to General Chemistry, CHM 1025C, 4 Units

Science Department @ Valencia College, Osceola Campus

Course Syllabus

Instructor: A. Tony Alabi, PhD. COURSE: CHM 1025C CRN: 22058

Office: Building 4, Room 401 Term: Spring 2019

E-mail: aalabi@valenciacollege.edu Class Meeting: Tuesday 8:30 – 11:15 am

Office Hours: By appointment Class Location: Building 2, Room 261

**Welcome to Introduction to General Chemistry**

**About the Course**

* **Prerequisites**: Minimum grade of C in High School Honors Algebra II or MAT 1033C or higher MAC prefix course. Prepares students without high school chemistry or with inadequate background for CHM 1045C. May not be taken for credit subsequent to earning C or better in CHM 1045C.
* **Catalogue Description of the Course**: Modern chemical theories used to develop understanding of fundamentals of inorganic chemistry and its applications. Emphasis on quantitative relationships, using dimensional analysis to solve problems. Laboratory experiences are integral part of the course.

**Course Overview**

This course is delivered in a mixed-format that blends on-campus and online instruction. Science allows us to learn much about the natural world. This course affords you the opportunity to understand science from chemist perspective. The course introduces students to the scientific method, measurement, matter, modern atomic theory, periodicity, characteristics of chemical bonding, the behavior of gases, the mole concept, chemical reactions and stoichiometry, gas laws, and laboratory techniques. To maximize students’ learning outcomes, lectures, chemical modeling, online group problem solving, and online discussions are incorporated in the course. Online quizzes will be given that may include content from any of the previous lectures. Summary notes and announcement will be available to students via Canvas.

Format:

This is a mixed-mode course with on-campus laboratory and online instruction components. On site review of online instructions will be held from 8:30-9:00am. The labs will be done at Valencia college, Osceola campus from 9:00-11:15am. This course also includes exams to be given outside of scheduled class hours.

**Exams and Homework**

Four unit homework assignments, four unit exams, five online discussion questions, eleven quizzes, and final exam will be given during the semester. Homework assignments, quizzes, and exams may include both multiple choice and written responses. Exam 1 will cover materials from unit 1, exam 2 will cover materials from unit 2, exam 3 will cover materials from unit 3, and exam 4 will cover materials from unit 4. Students can drop the lowest exam. **The final exam will be cumulative covering all the units and cannot be dropped.** Students must complete the unit exams by 8:30 am on the exam date deadline at the testing center. The exam will be available at the testing center for a week prior to the exam date deadline.

For each exam, a periodic table will be provided by the instructor. Students are permitted to bring a calculator and a writing utensil. Simple scientific calculators without a memory or graphing calculators can be used. A graphing calculator may only be used if the *student* proves the memory is cleared before the exam. A cell phone *cannot* be used as a calculator on an exam. All other aids are not permitted including, but not limited to, phones, tablets, smart watches, computers, textbooks, and notes.

Laboratory:

A completed pre-lab assignment, proper attire and arriving on time to lab are required to participate in each experiment.

*Each* lab requires:

1. A pre-lab to be completed and submitted online *prior* to the lab
2. A lab experiment completed during lab, and
3. A completed data sheet and post lab to be turned-in online by the due date.

Calculations must be shown on lab reports for full credit. The lowest lab report grade will be dropped.

Lab notebooks must be checked out with the instructor at the end of each lab. After each lab, you are expected to clean your station, the community areas, and clean glassware in order to receive full points on your lab grade. **All equipment must be put away in its proper location and glassware cleaned by 11:10 am.** No late work will be accepted. There are no make-up labs. Missing a lab counts as the dropped lab.

**Required Text:**

Introductory Chemistry, Zumdahl & DeCoste Cengage Learning, 9th edition, ISBN – 978-1-337-39952-4

**Laboratory Manual:**

Introductory Chemistry, Concepts and Critical Thinking, Corwin, 2nd Custom Edition for Valencia College, ISBN: 1323720065

**Laboratory Attire:**

Laboratory coat and closed toes shoe.

**Supplemental Materials:** Additional materials and resources will be available via Canvas.

**Evaluation and Grading**

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| **EXAMS 45%** |
| Exam 1 10%Exam 2 10% |
| Exam 3 10%Exam 4 10% |
| Final Exam 15%(Best 4 counts) |
| **Homework**  **15%** |
| **Web Quizzes 15%****Laboratory Reports 15%****Discussion 10%** |

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| **Grading Scale** |
| 900 - 1000 pts 90 - 100% A  |
| 800 - 899 pts 80 - 89% B |
| 700 - 799 pts 70 - 79% C |
| 600 - 699 pts 60 - 69% D |
|  0 - 599 pts 0 - 59% F |

**Point Distribution**

|  |
| --- |
| Exam 1 100 pts |
| Exam 2 100 pts |
| Exam 3 100 ptsExam 4 100 ptsFinal Exam 150 pts(Best 4 counts)Laboratory Reports 150 ptsWeb Quizzes 150 pts |
| Homework 150 ptsDiscussion 100 pts |
| Total: 1000 pts |

**Make-up Policy**

No make up for homework assignments, quizzes, discussion, and exams. Make up exam will only be granted for the second missed exam at the discretion and convenience of the instructor for college approved excuses. Prior authorization and appropriate documentation are required for make-up exam.

**Attendance and Tardy Policy**

Attendance and participation are essential for your success in this course! Students are expected to be in class and ready to learn at 8:30 am. For any unexcused absence, student will lose all the points associated with the lab, and/ or exam given on that day. Texting and using the phone during class is not permitted and will result in 2.5 points deduction from that day’s activity points.

**Student Disability Accommodations**

Contact the office of students with disabilities for any course related accommodations.

*"Students with disabilities who qualify for academic accommodations must provide a Notification to Instructor (NTI) form from the Office for Students with Disabilities (OSD) and discuss specific needs with the professor, preferably during the first two weeks of class; accommodations will not be applied retroactively. The Office for Students with Disabilities determines accommodations based on appropriate documentation of disabilities."*

*Osceola Campus Office, 2-104A Phone: 407-582-4167*

**Withdrawal Deadline and Policy**

“A student who withdraws from class before the **withdrawal deadline of Mar. 22, 2019** will receive a grade of “W.” A faculty member is permitted to withdraw a student from the faculty member's class up to the beginning of the final exam period, for violation of the faculty member's attendance policy, as published in the faculty member's syllabus. A student is not permitted to withdraw from this class after the withdrawal deadline; if you remain in the class after the withdrawal deadline, you can only receive a grade of A, B, C, D, F or I. An I grade will only be assigned under extraordinary circumstances that occur near the end of the semester. If you receive an I, the work missed must be made up during the following semester, at which time you will get an A, B, C, D or F. Failure to make up the work during the following semester will result in you getting a grade of F in the course. The professor will not withdraw any student for any reason; it is the responsibility of the student to withdraw themselves before the withdrawal deadline and to be aware of the date of the withdrawal deadline.”

**Student Help**

“*Valencia is committed to making sure all our students have a rewarding and successful college experience. To that purpose, Valencia students can get immediate help that may assist them with psychological issues dealing with stress, anxiety, depression, adjustment difficulties, substance abuse, time management as well as relationship problems dealing with school, home or work. Students have 24 hours unlimited access to the* ***BayCare Behavioral Health’s confidential student assistance program*** *phone counseling services by calling* ***(800) 878-5470****. Three free confidential face-to-face counseling sessions are also available to students.”* (Valencia Policy 4-07)

**Valencia College Core Competencies**

You will be given the opportunity to develop and practice four core competences that define the learning outcomes for a successful Valencia graduate as identified by faculty members. The four competences are Think, Value, Communicate, and Act.

1. ***“Think****- think clearly, and creatively, analyze, synthesize, integrate and evaluate in the many domains of human inquiry*
2. ***Value****- make reasoned judgments and responsible commitments*
3. ***Communicate****- communicate with different audiences using varied means*
4. ***Act****- act purposefully, effectively and responsibly.”*

**Electronic Devices**

When applicable, the use of electronic devices is strictly limited to course related information. Students must request a written permission via e-mail prior to taking photos or recording of any kind during any given lecture of CHM 1025C.

**Student Code of Conduct**

Students are expected to be in class ready to learn at 8:30 am. Students are expected to work individually and as part of a group during in-class discussions and assignments. All cell phone ringers should be set to off during class time. Students may not keep their cell phones on their desks. Food consumption is not permitted in class. Students who engage in any prohibited or unlawful acts that result in the disruption of a class will be directed to leave the class. Violations of any classroom or Valencia rules may lead to disciplinary actions up to and including expulsion from Valencia.

**Alternative Arrangements for Pregnant Students**

*The laboratory environment often times will involve the use of and/or exposure to chemicals or other hazardous substances/equipment.  If you are pregnant or plan on becoming pregnant during this course and are concerned about your exposure to these chemicals or hazardous substances/equipment, please see your instructor to discuss possible alternative arrangements.  Students are also invited to contact Mr. Ryan Kane, Title IX Coordinator/Equal Opportunity Officer, 407-582-3421,* [*rkane8@valenciacollege.edu*](https://webmail.valenciacollege.edu/OWA/redir.aspx?SURL=LB9zMvs8LLQOnzTY3yLQe1RDL5P-ds6YJXujFmFPNr_uURndXKDSCG0AYQBpAGwAdABvADoAcgBrAGEAbgBlADgAQAB2AGEAbABlAG4AYwBpAGEAYwBvAGwAbABlAGcAZQAuAGUAZAB1AA..&URL=mailto:rkane8@valenciacollege.edu)*, regarding requests for alternative arrangements relating to pregnancy.*

**Academic Honesty Statement**

Each student is required to follow Valencia policy regarding academic honesty as stated in the Student Code of Conduct. All forms of academic dishonesty (cheating, plagiarism, forgery, changing graded assignments) are prohibited. With the first occurrence of academic dishonesty, in any form, a student will receive a failing grade for that single assignment/assessment. Proof of a subsequent event of academic dishonesty will result in a failing grade in the class along with a referral to the Dean of Science and the Dean of Students. Cheating includes but is not limited to: copying text of a source without proper citation, and copying assignments (home works, prelab, and lab reports) or exam from other students.

**Key to Success**

CHM 1025C is a course that requires you to understand, master the material, and be able to apply it. To be successful, you need to read upcoming sections from your textbook prior to attending lectures, take notes, practice chapter problems, and ask clarifying questions. Chemistry is fun, remember to have fun learning it.

**Important Dates to Remember**

01/15/19 Last day to drop and receive refund, 11:59 p.m. deadline

03/22/19 Last day to withdraw and receive a “W” (refer to withdraw policy)

04/24/19 Final Exam, 5:00 – 7:30 pm

**Major Topics/ Concepts/ Skills/ Issues**

* Laboratory skills activities
* Scientific method and measurements
* Matter and energy
* Modern atomic theory and models of the atom
* The periodic table
* Nomenclature
* The mole concept
* Chemical reactions and stoichiometry
* Gas laws
* Chemical bonding

**Disclaimer**

This syllabus may be modified at the discretion of the professor at any time during the course. Students are responsible for announcement made during lectures and/or online via Canvas.

**Reading and Weekly Assignment Schedule**

**WEEK ONE, Jan. 7-12:**

Objectives: Introduction to Chemistry, measurements and calculations. The Introduction to Chemistry unit will include the description of Chemistry as a science and the steps of the scientific method. The importance of Chemistry as the Central Science will be emphasized. The measurement and calculation unit will include: critical units in Chemistry for the English and Metric Systems, uncertainty of measurements, significant figures, dimensional analysis method and the definition and application of Density.

Required Reading: Chapter 2.

**WEEK TWO, Jan. 14-19:**

Objectives: Study of matter and its properties. The study of matter will include its definition, chemical and physical properties, elements compounds, mixtures and pure substances and separation of mixtures.

Required Reading: Chapter 3.

**WEEK THREE, Jan.21-26:**

Objectives: Chemical Foundations, elements, atoms and ions. This unit will include the symbols for the most common elements, Dalton’s atomic theory, and formulas of compounds, the structure of the atom, modern concept of atomic structure, isotopes, and the periodic table, natural states of the elements, ions and compounds that contain ions.

Required Reading: Chapter 4.

**WEEK FOUR, Jan.28 – Feb. 2:**

Objectives: This week we will discuss Chapter 5. This chapter includes the nomenclature of inorganic compounds.

Required Reading: Chapter 5.

**Exam 1 at the testing center, open: Jan.28 – Feb. 2**

**Exam 1 covers chapters 1 - 4**

**WEEK FIVE, Feb 4 - 9:**

Objectives: This week we will discuss Chapter 6. This chapter includes the evidence for a chemical reaction, chemical equations and balancing of chemical equations.

Required Reading: Chapter 6.

**WEEK SIX, Feb 11 - 16:**

Objectives: This week we will start our discussion of predicting whether a reaction will occur, reactions in which a solid forms, describing reactions in aqueous solution, reactions that form water (acids and bases), reactions of metals with non-metals, ways to classify reactions, and others.

Required Reading: Chapter 7.

**WEEK SEVEN, Feb 18 - 23:**

Objectives: This week we will cover chapter 8. Chapter 8 discusses counting by weighing, atomic masses, the mole, molar mass, percent composition of compounds, formulas of compounds calculation of empirical formulas, calculation of molecular formulas.

Required Reading: Chapter 8.

 **WEEK EIGHT, Feb 25 – Mar. 2:**

Objectives: This week we will start working with chemical quantities and the information given by chemical equations. In addition we will learn the relationship of mole to mole, mass calculations and percent yield in relation to the balanced chemical equations.

Required Reading Chapter 9.

**WEEK NINE, Mar. 4 -9:**

Objectives: This week we will continue working with chemical quantities and the information given by chemical equations. In addition, we will learn the relationship of mole to mole, mass calculations and percent yield in relation to the balanced chemical equations.

Required Reading Chapter 9.

**WEEK TEN, Mar. 11 - 16**

Spring Break

**WEEK ELEVEN, Mar. 18 - 23:**

Objectives: To understand the Modern Atomic Theory, the electromagnetic radiation, emission of energy by atoms, the Bohr and Wave Mechanics model of the atom, the electronic arrangement of the first 18 atoms on the Periodic Table and the properties of the Periodic Table.

Required Reading Chapters 11.

**WEEK TWELVE, Mar. 25 - 30:**

Objectives: We discuss Chemical Bonding, types of chemical bonds, electronegativity, bond polarity, stable electron configuration, electron configuration and charges on ions, ionic and covalent bonds from Chapter 12. We will also go over Gases, Boyle’s, Charles’ Law, Dalton’s Law, Ideal Gas Law and the Kinetic Molecular Theory

Required Reading: Chapter 12 and Chapter 13.

**WEEK THIRTEEN, Apr 1 - 6:**

Objectives: We discuss Chemical Bonding, types of chemical bonds, electronegativity, bond polarity, stable electron configuration, electron configuration and charges on ions, ionic and covalent bonds from Chapter 12. We will also go over Gases, Boyle’s, Charles’ Law, Dalton’s Law, Ideal Gas Law and the Kinetic Molecular Theory

Required Reading: Chapter 12 and Chapter 13.

Objectives: Continue discussion of chapters 12 and 13

**WEEK FOURTEEN, Apr 8 - 13:**

Objectives: We will define p H and use the p H scale to identify substances as being acidic, basic, or neutral.

Required Reading: Assigned pages in Chapter 15 and Chapter 16.

**WEEK FIFTEEN, Apr 15 - 20:**

Review of all the chapters and final practice questions.

**WEEK SIXTEEN: Final Exam Week Apr 22 - 24**

**Lab Experiment Schedule**

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| **Week/Date** | **LAB'S NAME** | **Author** |
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| Spring 1: Jan. 7-12 | **Student Safety Orientation; \*nls** |   |
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| Spring 2: Jan. 14-19 | **MLK Day; Monday (no classes)** |   |
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| Spring 3: Jan. 21-26 | Introduction to Lab  | Davis |
|   |   |   |
| Spring 4: Jan. 28- Feb.2 | Significant Figures | Jamison |
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| Spring 5: Feb. 4-9 | Lab 5: Physical & Chemical Properties  | Corwin |
|   | **Learning Day; Friday (no classes)** |   |
|   | Lab 5: Physical & Chemical Properties (F class) |   |
| Spring 6: Feb. 11-16 | Lab 6: Atomic Fingerprints; \*nls | Corwin |
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| Spring 7: Feb. 18-23 | Dry Lab (Professors' Choice) |   |
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| Spring 8: Feb. 25- Mar. 2 | Lab 12: Empirical F. of Compounds: Part A  | Corwin |
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| Spring 9: Mar. 4-9 | Lab 15: Precipitating Calcium Phosphate  | Corwin |
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| Spring 10: Mar. 11-16 | **Spring Break** |   |
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| Spring 11: Mar. 18-23 | Lab 10: Analysis of a Penny: Part: A-E  | Corwin |
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| Spring 12: Mar. 25-30 | Lab 20: Analysis of Vinegar: Part B  | Corwin |
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| Spring 13: Apr. 1-6 | Lab 18: Molecular Bonds and Chemical B.; \*nls | Corwin |
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| Spring 14: Apr. 8-13 | Lab 16: Generating Hydrogen Gas | Crowin |
|   |   |   |
| Spring 15: Apr. 15-20 | No Lab |   |
|   |  |   |
| Spring 16: Apr. 22-27 | **Final Exams** |   |