Valencia West CHM 1025- Introductory Chemistry Spring 2015

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| Contact Information: | |
| Instructor: | Jessica King | |
| Email: | [Jking99@valenciacollge.edu](mailto:Jking99@valenciacollge.edu) Please keep in mind that only emails sent from a valid Valencia email address will be read (Blackboard is **not** the preferred method of contact). Please give up to two business-days for a reply. | |
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| Course Information: | |
| Lecture Meeting Times/Location: | M 2:30 – 5:15 pm AHS 213 | |
| Lab Meeting Times/Location: | W 2:30 – 5:15 pm AHS 304 | |
| Credit Hours: | 4 | |
| PreReqs: | One year of high school algebra or minimum grade of C in MAT 0020C or MAT 0024C or appropriate score on an approved assessment. It is assumed that students will have a grasp of algebra-solving skills necessary for solving problems in class. | |
| Required Texts: | |  | | --- | | Introductory Chemistry Lab Manual, Custom Valencia College, (Corwin) 1-256-95833-6 | | Introductory Chemistry: Concepts & Critical Thinking Custom for Valencia College, (Corwin), 978-1-269-391-46-7 | | |
| Course Description: | Prepares students without high school chemistry or with inadequate background for CHM 1045C. 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. Topics covered include problem-solving, atomic and molecular structure, chemical formulas and nomenclature, chemical reactions, bonding models, stoichiometry, gas laws, solutions, acids/bases, an introduction to organic chemistry and other selected topics. Laboratory experiences are integral part of course. May not be taken for credit subsequent to earning C or better in CHM 1045C | |
| W/D Deadline: | March 27th, 2014 | |
|  | **Withdrawal Policy**  A student desiring to withdraw from a course after the add/drop period should initiate withdrawal procedures with an instructor or counselor. Withdrawal deadlines are published in the official College Catalog and are posted on the College Academic Calendar. The professor will not withdraw students from the course, so please note the attendance policies. | |
| Method of Instruction: | The course will be taught through a combination of lectures, demonstrations, problem solving sections, homework assignments (including on-line assignments), and labs. | |

**Course Outcomes:** To understand the basic concepts of chemistry, In particular,

* Use knowledge of atomic structure in explaining bonding, writing formulas and predicting chemical behavior.
* Use dimensional analysis as a problem-solving method.
* Write formulas and names for ionic and covalent compounds.
* Make reasonable estimations related to problem-solving.
* Construct and interpret graphs according to specifications.
* Write names and structures for simple organic compounds.
* Complete and balance equations for the following types of reactions: combination, decomposition, single replacement, double replacement and combustion.
* Solve stoichiometry problems.
* Balance redox equations using the half-cell method.
* Perform laboratory experiments precisely, accurately and safely while becoming familiar with common laboratory chemicals and equipment.

Three Exams- 450 pts

Final Exam- 150 pts

Lab Report- 50 pts

Prelabs- 100 pts

Postlabs- 100 pts

Article Review- 50 pts

Attendance- 50 pts

Homework- 50 pts

Grade Point Distribution

1000 - 887.5 A

887.4- 787.5 B

787.4- 687.5 C

687.4- 587.5 D

587.5- 0 F

**Attendance:**

Attendance in this course is mandatory. You are allowed one un-excused, un-penalized absence. After that, every absence will deduct 20 points from your attendance grade. Students who have more than three absences will receive an “F” in the class. No makeup labs or makeup exams will be given, unless due to an institution-approved absence (see policy 6Hx28:4-07). In order for absences to be excused, students must provide appropriate documentation the day they return.

To receive credit for attendance, you must arrive on time, remain for the entire class, and be actively participating. If you notice your attendance grade is slowly dwindling, this may be a sign that you are not actively participating in class, or that you are engaging in behaviors that are not tolerated. You will be given a break during between recitation and lecture, and you are expected to return to class after the break. For this reason, please limit the number of unapproved breaks you take during class. Please do not carry on other conversations with students, listen to music, text, or eat in class. In other words, if a student’s desire to be on their cell phone is so overwhelming that it compels them to focus on their phone instead of on the material presented in class, they should consider obtaining professional help for what is clearly a problem. *On lab days, students will not be admitted after the safety lecture has begun (this is for safety purposes). You must be wearing proper attire in order to be admitted into the lab.*

**Homework:**

Homework assignments will be assigned via Mastering Chemistry (Pearson). You must have an access code in order to enroll, which can be purchased through the bookstore or the website itself.

Assignments are due at 11:59 pm the day they are assigned. An absence (unless university approved) does not preclude you from doing the homework, as all assignments are posted within the first three weeks of the course, and are thus prepared with plenty of notice. There is no such thing as “falling a little behind” in chemistry; either you’ve done your homework or you haven’t. Chronic lack of preparation (which is easy to spot) will lower your grade.

Your best 5 homework assignments will be used in your grade calculation.

**Journal Article Review:**

One of the most important aspects of being a member of the scientific community is to engage in discourse with other scientists. Therefore, it is important that you understand how chemists present new ideas to each other. For this class, you will find one article, of your choice, and write a one page review.

The purpose of the review is to open up a conversation (albeit, on paper) about chemistry and science. You will not be graded for the *correctness* of your opinions, but for the quality of your review. Your article must be turned-in as a hard copy on March 2nd. Electronic submissions will not be accepted. In order to receive full credit for this assignment, you must first turn in your two titles for approval. Please write these titles using ACS citation methods, which you can find here: <http://library.williams.edu/citing/styles/acs.php>

A rubric for this assignment is included in the syllabus. Although you will be given plenty of time, it is your prerogative to manage your time wisely

**Pre-Lab and Post-Lab Reports:**

For each lab you will be required to turn in a pre-lab and post-lab report, which are included as part of your lab manual. The pre-labs for each lab may be different. They may ask you to summarize the experiment, perform necessary calculations, rewrite the procedure, etc. You must complete the prelab for the respective lab before coming to class; prelabs are due at the beginning of class. Your best 10 pre and post labs will be used to calculate your grade.  
In order to perform the lab that students, must have completed the prelab and score a passing grade on the admission quiz. The quizzes do not count for a grade, but they ensure accountability. **No student will be allowed to perform the lab if they score less than 50% on the admission quiz.**

Post-labs will include your data sheet and questions regarding the experiment. Postlabs are due the week after the lab is performed. *You do not need to keep a lab notebook for this class, so it is imperative that you complete the pre-labs!*

Only the pre- and post- labs will be graded for accuracy, each will be worth 10 points. Your data will be graded for accuracy (i.e., you do not receive a “score” for completing your lab), but will never consist of more than 10% of the lab grade. This means that you can still achieve an “A” on the postlab even if you completed the lab incorrectly.

**Formal Lab Reports**:

You will be required to write **one** formal lab report based on a lab of your choice this semester. Formal lab reports must follow the following format: Abstract (a brief, 2-3 sentence introduction and summary of the experiment), List of Materials, Procedure (may be abbreviated, must be written in past tense, paragraph form), Data and observations (include all information gathered from lab here), Conclusions (what did the experiment prove?), Error Analysis (what might have been sources of error in this lab?). A sample formal lab report and a rubric will be provided on Blackboard. The formal lab report is due on the day of the final exam.

**Exams:**

Three exams will be administered in this class. There are no makeups for exams unless due to a university approved absence (see attendance policy).

There are no drop exams. The amount of material covered per exam and the date of the exams is at the discretion of the professor.  Tentatively, the exam dates are located on the calendar attached.

To study for the exams, it is suggested that you complete all the problems in each chapter. You should also come to class having completed the week’s readings. Sometimes I may include supplementary practice problems online or a practice exam, however this may not be for every test.

**Final Exam:**

The final exam is cumulative and mandatory. There are no makeups for the final exam, unless previously arranged or due to a college-approved excused absence. Students who do not attend the final exam will receive an F in the course.

**Grade Posting**:

Although Blackboard may be used to record some grades (such as tests), the software used by the site does not calculate grades in the same manner that I calculate them for the course. Therefore, Blackboard is not used as my official gradebook. If you are curious of your progress in class, a grade sheet has been attached to this syllabus. You are encouraged to tally your grade throughout the course so that you are aware of your progress. Questions regarding grades will not be discussed unless this sheet is presented and up-to-date.

**Zero Policy:**

Students who do not show work on homework or exams will receive a zero for that grade. Assignments that are NOT STAPLED or that are turned in with no name will not be graded and will also receive a zero. Any assignment or exam that has violated Academic Honesty policies will also result in a zero.

**Student Conduct and Academic Honesty:**

Valencia is dedicated not only to the advancement of knowledge and learning but is concerned with the development of responsible personal and social conduct. By enrolling at Valencia College, a student assumes the responsibility for becoming familiar with and abiding by the general rules of conduct. The primary responsibility for managing the classroom environment rests with the faculty. Students who engage in any prohibited or unlawful acts that result in disruption of a class may be directed by the faculty to leave the class. Violation of any classroom or campus rules may lead to disciplinary action up to and including expulsion.

Exams and assignments are considered individual effort; any submissions that are too similar for coincidence will receive no credit and will be submitted to the Dean for further evaluation of the situation.

*Also, plagiarism will not be tolerated in this class. It is very easy to spot plagiarism, especially if the plagiarism consists of blatantly different writing styles. If you have multiple personalities that you like to bring out through your writing, please refrain from doing so in this class. Any assignments that are considered to be plagiarized (which includes online sources, current peers’ work, or previous peers’ work) will be submitted to the Dean for further evaluation of the situation*. Valencia’s procedures for academic dishonesty could include "loss of credit for an assignment," "withdrawal from course," "reduction in the course grade," "a grade of 'F' in the course," or "probation, suspension and/or expulsion from the College."

**Student Assistance Program:** Valencia College is interested in making sure all our students have a rewarding and successful college experience. To that purpose, Valencia students can get immediate help with issues dealing with stress, anxiety, depression, adjustment difficulties, substance abuse, time management as well as relationship problems dealing with school, home or work. BayCare Behavioral Health Student Assistance Program (SAP) services are free to all Valencia students and available 24 hours a day by calling (800) 878-5470. Free face-to-face counseling is also available.

**Computer/Equipment Use Policy:**

 Use of computers in the Business, IT, and Public Services classrooms at Valencia is restricted to those activities designated by the instructor to enhance the class materials. Any other use is strictly forbidden. Inappropriate use includes, but is not limited to: Use of computer to send E-mail or access Internet sites not specifically assigned in class, Use of computer for job, internship, homework or other activities not assigned in class, modifying any hardware or software system configuration or setting, Activities not in accordance with the Valencia Student Code of Conduct, computer use is remotely monitored; any student using computers inappropriately may be subject to dismissal from class or banishment from the lab. Subsequent offense may be sent to the campus administration for further disciplinary action.

**Students with Disabilities:**

Students with disabilities who qualify for academic accommodations must provide a notification from the Office for Students with Disabilities (OSD) and discuss specific needs with the instructor, preferably during the first two weeks of class. The Office for Students with Disabilities determines accommodations based on appropriate documentation of disabilities.

**Syllabus Modification:**

Any changes to this syllabus may be made at the discretion of the professor. Students will receive an updated syllabus.

**Journal Article Review Assignment**

1. Find an appropriate peer-reviewed journal article from the American Chemical Society’s website (acs.org). Free articles can be found by clicking on a particular journal and then clicking on “sample issue.” You may choose to purchase an article, if you feel so inclined. If you are uncertain if an article is peer-reviewed, our librarians may be more than happy to assist you in the process.
2. Write a brief summary of the article. Be sure to include why the research was performed, how it was performed and analyzed, and what the results were. Your summary should be about paragraph long (a minimum of seven sentences).
3. Write two paragraphs as a reflection of the journal article. You may choose to devote one paragraph to your experience reading the article (what topics have you seen before; why did you choose this article; how does this article relate to our class, to labs you have done; how do the authors interpret and present their data) and one paragraph to a critique of the article. While you are not expected to have the level of understanding to critique the article in the same manner that a graduate student would, you should still comment on possible alternative applications (if any… or is the research a waste of time??), biases, areas for improvement, or future research they should do.
4. A good paper will is based on quality, not quantity, so I do not require a minimum page length. It doesn’t matter whether your writing style leans toward Raymond Carver or Charles Dickens as long as you present the material.
5. Print out the rubric on the following page and include it with your article review. Journal Articles not including a rubric will not be graded and will be given a zero

**Lab Report Assignment**

1. Choose a quantitative lab (one that has measurements) to write your lab report
2. A good lab report includes the following sections
   1. Abstract- approximately 3 sentences. States the purpose of the chemistry-related purpose of the lab, not the educational purpose. Also states the method and the results, succinctly.
   2. Introduction- approximately 2 paragraphs. Presents required background knowledge and explains all variables used in the experiment, including any equations used in calculations. Because these theories still exist, this portion is written in the present tense, ex: “The balanced equation **is** …”
   3. Procedure- written in the past perfect tense and paragraph form. Avoid the use of first person, as that can be interpreted as bias. “The sample ***was measured***…” or “The solution **was poured** into a beaker.”
   4. Data- can be written as a table or graph, whichever you feel relates the information best
   5. Results and Conclusion- explains why, mathematically or conceptually, the experiment worked. Any calculations are presented in this section (you may handwrite this). You must also discuss three possible sources of error in a cause-and-effect manner. Do not include human error as a source. Example of cause-and-effect errors: “If the sample was measured while still wet, the mass would have been calculated as too large, **which would have caused** the number of moles to be calculated as too large.”
3. You must include at least one image and one graph relating to the lab
4. Include the rubric as part of your lab report

Journal Article Rubric

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 10 | 7.5 | 3 | 0 | Your Score |
| Reference | --ACS style is **Perfect**  - Appropriate article selection | Minor edits needed – follow the details. | Major edits needed. Learn the details. | - Does not follow APS style or  -Inappropriate article selection |  |
| Review of  Article | Major points selected and discussed. | Same as 4, but selects couple minor issues or no supporting example explained | Does not focus on major issues | Missed the jest of the article. |  |
| Writing | Clear articulate writing used.  Well organized thinking that reviews the article, discusses the major points in an order that makes sense, and closes with your thoughts.  One or two minor edits needed to be a **perfect** paper!  Keep up the great work! | Minor edits needed. Proof-reading will help you. Read aloud to yourself and or ask others to read it out loud to you.  Minor jumping around on points. Could be better with few minor moves | Major edits needed. Get help so you learn the process.  Major jumping around on points made in review. Major organizational edits needed to articulate clearly | Turns in something. Not college level work at all. Get help at the writing center.  No organizational thought demonstrated in writing of review, major points discussed in the article, or your thoughts and ideas. |  |
| Connections to the class or learning | Connects the article to topics covered in class, current events, or outside reading. Analyzes what type of data was collected and how it was presented in the article. |  | Connects article only in a superficial manner by defining terminology (i.e., “the article used moles” or “the article included bar graphs.”) | Does not connect the article to class |  |
| Your Thoughts | Articulates your thoughts on the article in clear manner. Discusses what you learned from reading the article or ideas you might use in the future.  Offers a critique that includes future research and applications |  | Brief mention of thoughts, but did not elaborate. No mention of learning from reading the article. | Does not write any of your own thoughts or ideas about what is discussed in the article. |  |

For Citation Help, please visit:

<http://www.libraries.psu.edu/content/dam/psul/up/pams/documents/QuickGuideACS.pdf>

**Lab Report Rubric**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **1**  **Beginning or incomplete** | **2**  **Developing** | **3**  **Accomplished** | **4**  **Exemplary** | **Score** |
| **Abstract/Summary**  **(2-3 sentences)** | Several major aspects of the experiment are missing, student displays a lack of understanding about how to write an abstract | Abstract misses one or more major aspects of carrying out the experiment or the results | Abstract references most of the major aspects of the experiment, some minor details are missing | Abstract contains reference to all major aspects of carrying out the experiment and the results, well-written |  |
| **Introduction**  **(1 full paragraph)** | Very little background information provided or information is incorrect | Some introductory information, but still missing some major points | Introduction is nearly complete, missing some minor points | Introduction complete and well-written; provides all necessary background principles for the experiment |  |
| **Experimental procedure** | Missing several important experimental details or not written in paragraph format | Written in paragraph format, still missing some important experimental details | Written in paragraph format, important experimental details are covered, some minor details missing | Well-written in paragraph format, all experimental details are covered |  |
| **Results:**  **data, figures, graphs, tables, etc.** | Figures, graphs, tables contain errors or are poorly constructed, have missing titles, captions or numbers, units missing or incorrect, etc. Table captions should be above the table; picture captions should be below the table. | Most figures, graphs, tables OK, some still missing some important or required features | All figures, graphs, tables are correctly drawn, but some have minor problems or could still be improved | All figures, graphs, tables are correctly drawn, are numbered and contain titles/captions. |  |
| **Discussion and Conclusion**  **YOU MUST DISCUSS SOURCES OF ERRORS** | Very incomplete or incorrect interpretation of trends and comparison of data indicating a lack of understanding of results.  Conclusions missing or missing the important points | Some of the results have been correctly interpreted and discussed; partial but incomplete understanding of results is still evident  Conclusions regarding major points are drawn, but many are misstated, indicating a lack of understanding | Almost all of the results have been correctly interpreted and discussed, only minor improvements are needed  All important conclusions have been drawn, could be better stated | All important trends and data comparisons have been interpreted correctly and discussed, good understanding of results is conveyed  All important conclusions have been clearly made, student shows good understanding |  |
| **Spelling, grammar, sentence structure** | Frequent grammar and/or spelling errors, writing style is rough and immature | Occasional grammar/spelling errors, generally readable with some rough spots in writing style | Less than 3 grammar/spelling errors, mature, readable style | All grammar/spelling correct and very well-written |  |
| **Appearance and formatting** | Sections out of order, too much handwritten copy, sloppy formatting | Sections in order, contains the minimum allowable amount of handwritten copy, formatting is rough but readable | All sections in order, formatting generally good but could still be improved | All sections in order, well-formatted, very readable |  |

**Keep Track of Your Grades Worksheet**

|  |  |  |
| --- | --- | --- |
|  | **Pre Lab Score (out of 10)** | **Post Lab Score (out of 10)** |
| **Experiment 2** |  |  |
| **Experiment 3** |  |  |
| **Experiment 5** |  |  |
| **Experiment 7** |  |  |
| **Experiment 8** |  |  |
| **Experiment 9** |  |  |
| **Experiment 10** |  |  |
| **Experiment 12** |  |  |
| **Experiment 15** |  |  |
| **Experiment 16** |  |  |
| **Experiment 18** |  |  |
| **Experiment 29** |  |  |
| **Sum of Best 10** |  |  |

Grade Point Distribution

1000 - 887.5 A

887.4- 787.5 B

787.4- 687.5 C

687.4- 587.5 D

587.5- 0 F

Three Exams- 450 pts

Final Exam- 150 pts

Lab Report- 100 pts

Prelabs- 100 pts

Postlabs- 100 pts

Article Review- 50 pts

Attendance- 50 pts

|  |  |
| --- | --- |
|  | **Score (out of 150)** |
| **Exam #1** |  |
| **Exam #2** |  |
| **Exam #3** |  |
| **Exam Total** |  |

|  |  |
| --- | --- |
|  | **Score** |
| **Article Review**  **(out of 50)** |  |
| **Formal Lab Report (out of 100)** |  |

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| **Attendance (out of 50)** |
| Deduct 20 points for each tardy, absence, or dismissal from lab |
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| --- | --- |
|  | **Score (out of 10)** |
| **HW #1** |  |
| **HW #2** |  |
| **HW #3** |  |
| **HW #4** |  |
| **HW #5** |  |
| **HW #6** |  |
| **Sum of Best 5 HW** |  |

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| --- | --- |
| **Make your predictions** |  |
| **Final Exam (out of 150)** |  |

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| **Add up all shaded areas for class total Refer above for grade** |
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CHM 1025C SPRING 2015 SCHEDULE

LAB MANUAL BY C.H. CORWIN (VC Custom edition)

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| --- | --- | --- | --- |
| WEEK | STARTING | LECTURE COMPONENT | LABORATORY SCHEDULED |
| 1 | 12 Jan | Chapter 1- Intro to Chemistry | Introduction to safety rules (Video / Introduction |
| 2 | 20 Jan | Chapter 2- Metric System | Exp # 2: Instrumental Measurements (No Class 1/19 MLK day) |
| 3 | 26 Jan | HOMEWORK #1  Chapter 3- Matter and Energy  Chapter 4- Models of an Atom | Exp # 3: Density of Liquids and Solids ( Instructor demo DENSITY) |
| 4 | 2 Feb | HOMEWORK #2  Chapter 5- Periodic Table | Exp # 5: Physical and Chemical Properties ( parts D & D only)  Instructor demo parts 1 & 2 |
| 5 | 9 Feb | EXAM #1 (Chapters 1-5) | Exp # 7: Families of Elements |
| 6 | 16 Feb | Chapter 12- Chemical Bonding | Exp # 8: Identifying Cations in Solution |
| 7 | 23 Feb | HOMEWORK #3  Chapter 6- Language of Chemistry | Exp # 9: Identifying Anions in Solution |
| 8 | 2 Mar | HOMEWORK #4  ARTICLE REVIEW DUE  Chapter 7- Chemical Reactions | Exp # 10: Analysis of a Penny ( Parts B—E only) |
| 9 | 9 Mar | SPRING BREAK | SPRING BREAK |
| 10 | 16 Mar | EXAM #2 (Chapters 12, 6, 7) | Exp # 12: Empirical Formula of Compounds  (only part A) |
| 11 | 23 Mar | Chapter 8- Mole Concepts | Exp # 15: Precipitating Calcium Phosphate |
| 12 | 30 Mar | HOMEWORK #5  Chapter 9- Chemical Equation Calculations | Exp # 16: Generating Hydrogen Gas |
| 13 | 6 Apr | HOMEWORK #6  Chapter 10- Gases | Exp # 18 : Molecular Models and Chemical Bonds |
| 14 | 13 Apr | EXAM #3 (Chapters 8-10) | Exp # 29: Analysis of Vinegar |
| 15 | 20 Apr | FORMAL LAB REPORT DUE  Chapters 11 and 17 | NO LABORATORY |
| 16 | 27 Apr | FINAL EXAM - April 29, 2015 13:00 – 15:30 (ROOM TBD) | FINAL EXAM WEEK |