

COURSE OUTLINE AND POLICIES FOR CHEMISTRY CP

Mrs. LeGrone / Rooms 427 and 429

What is Chemistry CP?

One definition of the Chemistry CP course is:

“... a study of the composition, properties, and changes associated with matter. The contents include classifications and structure of matter, atomic theory, the Periodic Table, bonding, chemical formulas, chemical reactions and balanced equations; behavior of gases, physical changes, acids, bases, and salts; and energy associated with physical and chemical changes.”

That may not sound like much, but it covers a *lot* of ground – easily a whole semester’s worth – especially when you figure in the time spent in lab. Chemistry CP is a college prep class, so we will be moving at fast pace and covering topics in great depth. It’s not a course for the faint of heart and it is NOT a course for lazy people!

Warning!

Chemistry CP is where you find out there’s often a *big* difference between *passing* Algebra I and actually *learning* algebra. If you passed Algebra I but didn’t *retain* any of the techniques you supposedly learned in the course, you’re going to have a tough time in Chemistry. If you made a **C** or **D** in Algebra I (or worse, in Algebra IA/IB), you’re going to have a tough time in Chemistry. About two-thirds of the way through the course, we’ll be doing problems like this:

Problem: How many grams of iron (III) oxide can be made from 12.40 g of iron metal?

Solution: $4\text{Fe} + 3\text{O}_2 \rightarrow 2\text{Fe}_2\text{O}_3$

$$12.40 \text{ g Fe} \left(\frac{1 \text{ mol Fe}}{55.847 \text{ g Fe}} \right) \left(\frac{2 \text{ moles Fe}_2\text{O}_3}{4 \text{ moles Fe}} \right) \left(\frac{159.69 \text{ g Fe}_2\text{O}_3}{1 \text{ mole Fe}_2\text{O}_3} \right) = 17.73 \text{ g Fe}_2\text{O}_3$$

Then, when we get to gas laws, we’re doing problems like this:

Problem: You are given a sample of carbon monoxide with a volume of 126.50 mL at 94.45 kPa and 295 K. What volume would the sample have at standard temperature and pressure?

Solution: $\frac{(94.45 \text{ kPa})(126.50 \text{ mL})}{295 \text{ K}} = \frac{(101.325 \text{ kPa})(V_2)}{273 \text{ K}}$

$$V_2 = 109.12 \text{ mL}$$

The *chemistry* part is learning how to set up these problems; after that, it’s all algebra. If you can’t handle numbers, consider getting a schedule change – this is *not* a refresher course in algebra. What you made in Biology I or HR Biology I doesn’t matter at all – Chemistry is a completely different beast. Students are sometimes traumatized when they make their first **B**, **C**, or **D** (or worse) in Chemistry. We *won’t* be waiting around for you to *finally* get what’s going on.

You *have* been warned.

A Word About Calculators

You *will* be bringing your calculator to class *every day*; this *isn’t* an option. The preferred type of calculator for Chemistry CP is the Texas Instruments® TI-30. It’s inexpensive (about \$10 at Wal-Mart or Office Max/Depot), yet powerful enough to handle anything you’ll encounter in Chemistry CP, AP Chemistry, or Physics. Beware of the so-called “algebraic” calculators like the two-line TI-34 and most larger Casio® calculators; they require a different problem-solving approach. The huge “Game Boy”® calculators, like the TI-83 or higher, are just overkill – and you will NOT be allowed to use them on a test.

Whichever calculator you use, it should be able to handle scientific notation (look for the **EE** or **EXP** key) and logarithms (look for the **log** key). A \$3 credit-card-sized “four-banger” simply won’t handle everything you’re going to have to do in Chem I.

Brief Course Outline

We will be using the text HOLT: Modern Chemistry. These books are in excellent condition and you will be held responsible for any damage incurred during the semester the book is assigned to you. Because of the fluidity of the school schedule – holidays, club schedules, assemblies, testing, etc. – it is impossible to give specific dates on which we will address specific topics. I *can*, however, give you a rough outline of the topics we will cover in the course:

WEEK 1	Introduction, Safety, Intro Inquiry Activity, etc. • COS-10.0 Topics: safety, scientific method, scientific notation, SI base units, dimensional analysis, significant figures, temperature conversions, graphing	WEEK 11	Chemical Reactions • COS-6.4 Topics: write and balance chemical equations, classification of reactions, balancing reactions, formula equations from word equations
WEEK 2	Properties and Changes in Matter • COS-1.0, 1.1, 1.2, 1.3, 5.0, 8.0 Topics: distinguish between elements, compounds, and mixtures, heterogeneous, homogeneous, metal, non-metal, metalloid, relate the kinetic theory to states of matter, distinguish among chemical & physical properties and changes (intensive & extensive)	WEEK 12	Mole & Stoichiometry • COS-6.0 6.6 Topics: convert among moles, particles and mass, % composition, calculate empirical and molecular formulas, stoichiometric calculations (all types), volume to volume stoichiometric calculations.
WEEK 3	Structure of the Atom • COS-3.2, 3.3 Topics: calculate the number of protons, neutrons, and electrons in isotopes, be familiar with the contributions of Thomson, Rutherford, Millikan, Dalton, & Chadwick, know basic atomic structure, calculate average atomic mass based on % abundance	WEEK 13	Mole & Stoichiometry Continued • COS-6.0, 6.5 Topics: convert among moles, particles and mass, % composition, calculate empirical and molecular formulas, stoichiometric calculations (all types), volume to volume stoichiometric calculations.
WEEK 4	Nuclear Chemistry • COS-9.0, 9.1, 9.2, 9.3, 9.4 Topics: nuclear composition & stability, physical & chemical properties, chemical versus nuclear reactions, types of radiation, half life, fission/fusion, subatomic particles, types of radiation & properties, carbon-14 decay	WEEK 14	Gases • COS- 7.0 • Topics: The following Gas Laws: Charles, Boyles, Gay Lussac, Combined, & Ideal Gas Law
WEEK 5	Electron Configuration • COS-3.1 Topics : standard form, noble gas core, final entry, orbital notation, Lewis dot structure, calculate number of valence electrons, assign oxidation numbers based on electron configuration	WEEK 15	Kinetics and Equilibrium • COS- 5.1, 8.2 Topics: factors that affect rates of reaction (temperature, surface area, catalysts, inhibitors, concentration, nature of reactants), kinetic theory, collision theory of gasses, activation energy, Le Chatelier (NOT on CRT)
WEEK 6	Periodic Table • COS-3.0 Topics : periodic trends (atomic radius, electronegativity, ionization energy), group names, assigning oxidation numbers, energy levels	WEEK 16	Thermochemistry • COS- 8.1 Topics: endothermic/exothermic, specific heat calculations
WEEK 7	Ionic Compounds • COS-6.1, 6.2, 6.3 Topics: compare bond types, name ionic compounds (including polyatomic ions), define metallic bond, write formulas from names & names from formulas	WEEK 17	Solutions • COS-4.0, 4.1, 4.2, 4.4 Topics: solute/solvent, saturated/unsaturated/supersaturated, emulsion/colloid/suspension/solution, electrolytic/nonelectrolytic, molarity calculations, dilution problems, miscible/immiscible, read solubility graphs and tables, “like dissolves like”, gas solubility (pressure and temperature), factors that affect rate of solution (temperature, surface area, agitation)
WEEK 8	Ionic Compounds • COS-6.1, 6.2, 6.3 Topics: compare bond types, name ionic compounds (including polyatomic ions), define metallic bond, write formulas from names & names from formulas	WEEK 18	Acid and Bases • COS- 4.3 Topics: Bronsted-Lowry, Arrhenius, properties, indicators, neutralization reactions, pH scale, definition of pH (NO log calculations), strong/weak, dilute/concentrated, ionization
WEEK 9	Covalent Compounds • COS-2.0, 2.1, 2.2, 6.1, 6.2, 6.3 Topics: compare bond types, name binary compounds & acids, write formulas from names & names from formulas, describe structure of carbon chains, branched chains, rings, and identify alkanes, alkenes, and alkynes, hydroxyl groups, and carboxyl groups	WEEK 19	Review for CRT Criterion Referenced Test will be given here
WEEK 10	Review for CRT Criterion Referenced Test will be given here		

Chemistry CP is very much like a math course in that each topic builds on the preceding topics. You *will not* be able to simply memorize material long enough to pass a test on it and then promptly forget it. If, for example, you don't grasp the concept of significant digits, you will probably lose 5 – 7 points on each subsequent test because you don't have the proper number of digits in your answers. If you get lost in writing chemical formulas, you won't do well on formula-based calculations and chemical equations – and stoichiometry (see front page) will eat you alive.

The midterm and final exams are *comprehensive* – that is, they cover *everything* we have done up to that point. You will encounter significant digits, scientific notation, classification of matter, and lab equipment and safety on the final exam – so you can't afford to forget *anything!* The midterm and final in Chemistry CP are CRTs.

Labs and Lab Fees

Yes, we *will* be doing lab activities in Chemistry – the lab is an integral part of the course. We usually do more than a dozen labs during the course of the semester – sometimes more, sometimes less, depending on available time and equipment – and they go with what we're doing at the moment. I also do demonstrations as part of the class lecture – and these and the labs have a nasty way of showing up on tests. No, we *won't* be doing any dissections – this is *chemistry*, not biology.

Yes, there *is* a lab fee for Chemistry – it's \$15 per student. This money goes toward purchasing materials that are used up during the course, usually chemicals and glassware. Any excess money is used for lab equipment maintenance and purchase (a single digital balance runs about \$225, so it goes fast). Checks may be made payable to Mary G. Montgomery High School.

Yes, I *am* an absolute tyrant in lab – especially where safety is concerned. If a student is misbehaving in lab, disregarding the procedure, or otherwise endangering himself or others, I will not hesitate to remove him from the lab area. Depending on the severity of the infraction, I *may* or *may not* allow him back into the lab, at least for a while. More about lab safety in another handout ...

We have a state-of-the-art chemistry classroom and lab, with excellent furniture, fixtures, and safety equipment. These facilities are there to be *used*, so we're going to use them in the ways they were *intended* to be used. Students who abuse the facilities – and I have a very broad definition of what constitutes "abuse" – will be sent to the office on a discipline referral. *Period.* End of discussion.

Assignments and Grading

Tests come at the end of a *topic*, usually every Friday. Tests make up 60% of your grade. The remaining 40% of your grade will be made up of quizzes, homework, early work, and labs. Quizzes are given **every day** except test days. Lab activities will usually be held on Thursdays. Homework assignments are usually given daily. Your homework grade is determined by how ***completely*** and ***accurately*** you do the assignment. You don't automatically get full points for simply having turned in a paper. You will be taking a CRT in Chemistry CP. This test will make up 20% of your quarter grade. Your grade will be based on the standard "90 – 100 = **A**" grading scale. Rounding is done according to standard rules.

There will be *no* extra-credit assignments. The grades will *not* be scaled. You will get the grade you *earn*.

You may check STI Home for your grades; however, please understand that this is just a snapshot of your grade. It takes time for STI Home to update, so your actual grade may be different than what STI Home states.

Mary G. Montgomery High School Category Points Grading Scale

Tests 60%

Test grades will include: _____ *tests* _____

Other grades 40%

Other grades will include: _____ *homework, quizzes, labs* _____

Example grade calculation for Category Points

<u>Tests (60%)</u>	<u>Earned</u>	<u>Possible</u>
Test 1	97	100
Test 2	82	100
Test 3	57	100
Project 1	40	50
Project 2	<u>20</u>	<u>50</u>
	296	400

To get your test average, add up all of your earned points and divide by the possible points.

296 points ÷ 400 points = 74.0 average

<u>Other (40%)</u>	<u>Earned</u>	<u>Possible</u>
Homework 1	60	75
Class work 1	88	100
Quiz 1	70	100
Homework 2	45	50
Homework 3	<u>8</u>	<u>20</u>
	271	345

To get your "other" average, add up all of your earned points and divide by the possible points.

271 points ÷ 345 grades = 78.6 average

To get your class average, take your test average and multiply by 0.6. Then take your other average and multiply by 0.4. Lastly add those two numbers together. This is your class average.

$$74.0 \times 0.6 = 44.4$$

$$78.6 \times 0.4 = 31.44$$

Average = 75.84 (Quarter Net Average)

This is your average going into the CRT (also called QNA). To get your grade after the CRT you take your QNA and multiply it by 4. Then you add your CRT grade. Finally, you divide that number by 5. This is your final quarter average.

For example, you have a 75.84 going into the CRT and you make a 65 on the CRT.

$$(75.84 \times 4) + 65 = 368.36$$

Now divide by 5...

$$368.36 \div 5 = 73.67$$

This is your final quarter average.

Final Quarter Grade = 74

Make-Up Work

If you miss a test, quiz, or class work, you will be assigned a grade of 1 (incomplete). You will have 1 week to complete the assignment. After 1 week, you will have a 25% reduction in your grade as a late penalty. There will be NO EXCEPTIONS! Once the assignment has been turned in, you will be assigned a grade of 2 until the assignment has been graded. After I have graded the assignment, I will replace the 2 with your grade (25% penalty will be applied if over 1 week late). **It is YOUR responsibility to find out what you missed when you return.** I will not track you down to give you your assignments. You must get notes and assignments from a classmate; after a *valid* attempt at completing the work, I will be available after school to help you.

I reserve the right to make make-up tests and quizzes different from the regularly scheduled test/quiz. While I will endeavor to make the degree of difficulty comparable to the original test/quiz, I am under no *obligation* to do so. It is to your benefit to take the tests and quizzes on the scheduled days.

If you are absent you may go to www.molecafe.com to get your assignments for the day. The lecture, homework, and any worksheets or handouts can be found there. Therefore, there is NO excuse for falling behind!

If you fail a test, you will have an opportunity for a re-take test. All re-takes will be given on a predetermined day of the week at 2:45. There will be no exceptions to the re-take days & times. If you are late, you forfeit your opportunity to the re-take. The grade of the re-take test will stand (even if it is lower), so make sure you are prepared.

Expectations

Besides yourself, there are a few things that you will be required to bring to class each and every day. These things include: your chemistry notebook, loose-leaf paper, a pencil, your calculator, and your book. Failure to bring any of these items may result in a reduced grade for the day. **ALL work must be done in pencil.** Absolutely NO work will be accepted in pen.

Parent Conferences

Parent conferences may be scheduled through the school office at **221-3153**, or at the midterm PTO meeting; impromptu conferences are strongly discouraged. However, I am available for conferences during my planning period. I may also be contacted through my e-mail address at teeda21@yahoo.com. Because of privacy concerns, I *will not* discuss a student's performance via E-mail; this address will be strictly for scheduling conferences and answering any questions that you may have.

Class Rules

I have quite a few classroom rules. They are very simple and follow the guidelines in your student handbook. These rules are made to create an environment that will aid student learning. They are not intended to be restrictive of one's character or personality, but rather each student will develop his/her greatest potential.

1. When you enter the room, turn in your homework from the previous day and begin your early work without talking.
2. If you have parent notes, doctor's notes, or admit slips place them in the signature box. I will get them back to you sometime during the class.
3. You must bring your notebook, book, pencil, paper, and calculator **everyday**. Failure to bring even one of these items may result in a reduced grade.
4. You may NOT share calculators during a test. If I see you I will assume that you are cheating and you will receive a grade of zero.
5. With the exception of turning in your work, do not leave your seat without permission.
6. You may bring a bottle of water to class; however, you will not be allowed to leave the classroom to go get water and soft drinks are not allowed.
7. You may NOT leave my classroom to go anywhere else (another teacher, guidance, the office...) unless you are requested either in writing or called over the intercom and then, your work must be completed in order for you to leave. This is a college prep class. You need to be here!

8. Please refrain from any disrespectful gestures or remarks in this class. This includes eye rolling and any improper language.

9. When in lab, if I start talking you are to immediately become silent. I am probably trying to tell you something important about the lab that involves either your safety or your grade.

10. Do not be even one second late for this class. You are to be in your seats when the bell rings.

11. You will come to class in proper uniform. This includes the appropriate shoes, backpack, shirt tails tucked in, and NO cell phones.

12. You are not to get out of your seat until you are dismissed. I will not hold you late, but I will also not let you congregate around the door or the desks. I may have some important closing information that I need you to hear.

13. Once you are done with your class work, you are to remain quiet at your desk. Do not start talking to those around you. Be respectful of the fact that others may not be done with their work.

14. You may NOT eat anything or chew gum in this class. Gum has a nasty way of ending up under the desks & food tends to attract roaches.

Consequences

There will be consequences for violating the school policies and procedures. Remember, it is your responsibility to know these policies and procedures, and when you violate them I presume it is a choice that you have made knowing that there are consequences that will follow. The basic consequences are outlined below; these pertain to all class A offences. Any offences of class B or C nature will result in a written disciplinary referral and the student will be sent to the office.

1st offense – T/S conference / verbal warning

2nd offense – T/S conference / written behavioral essay, returned and signed by parents

3rd offense – referral to guidance with explanation of infractions

4th offense – disciplinary referral, student is sent to office with documentation of prior offenses

Note: Failure to return an essay with a parent signature is classified as “deliberate disobedience” a class B offense. Please refer to the student handbook for other possible consequences.

Survival Tips

- Keeping up with class notes and assignments is crucial.
- Chemistry I is a *cumulative* course; that is, if you get lost at any point, chances are your grades will suffer from that point onward.
- This course is designed for college-bound students and is an honors course, and I strive to teach it that way as much as possible. If you think *I'm* moving too fast or boring you to tears, wait 'til you get to college!
- Don't be afraid to ask questions – that's why I'm here. On the other hand, don't expect me to *give* you an answer – I'll ask leading questions that will help you figure out the answer for yourself.

Chemistry 1 CP Syllabus Signature Sheet

Both you and your parents should read this syllabus and sign the signature sheet. This portion should be returned to me no later than FRIDAY. Place the rest in your notebook.

Student Name (*print*) _____

I/we have read the above syllabus and understand the expectations of the class. I will keep this syllabus in the front of my notebook and use it as a guide throughout the semester. A parent and I have signed this syllabus as a statement of accepting the challenges and responsibilities of this class in order to achieve my greatest academic potential.

Student signature _____ Date _____

Parent signature _____ Date _____