

Welcome to Chemistry II - Advanced Placement 2018-2019

Welcome to Chemistry II AP. We hope that you are looking forward to the challenge and thrill of college level chemistry as much as we are looking forward to guiding you to a successful year. There is a lot of material that we need to cover next year, so it is important that we hit the ground running.

Thus, there are some topics that you should remember from your first year of chemistry that you need to review this summer so that we all start with the same basic background. You should arrive in September with a mastery of the basics of significant digits, scientific notation, proper use of units, simple unit conversions, factor-label method (dimensional analysis) and the methods used to analyze laboratory data. You must know the names, symbols and charges of the common monatomic ions. You do not need to memorize the polyatomic ions, because a list of common polyatomic ions is attached. Be able to write formulas with charges when given the name and vice-versa. You also need to know how to name acids (such as hydrochloric acid and sulfuric acid), which you might not have covered in 1st year chem. Also, when doing calculations, you will be expected to correctly use the factor-label method to **show your work** on all homework, tests, quizzes, and labs and to use the proper units on all numbers. Be sure you can write answers to mathematical operations using the correct number of significant digits (also called significant figures).

Your summer assignment (Labeled as HW #1-1 and HW #2-1) is on the next page. Make sure you read the corresponding pages in the text thoroughly and do the problems to the best of your ability. You may find that you remember most of this content, but do not assume you fully remember it. **The full summer assignment is due on the first day of class, Wednesday, Sept 5.** It will be checked and counted as a 10 point homework assignment. We will review the full summer assignment on that Wed and Thursday and then finish up on Friday. **There will be a full period test on the contents of the summer assignment on ~~Monday, September 10th~~ Friday, September 14th.**

The final numerical answers to the summer assignment and additional study resources will be available around the middle of August at Dr. Casagrande's website, <http://www.doccasagrande.net>. For additional help, you can access the textbook website by going to... http://highered.mcgraw-hill.com/sites/0072512644/student_view0/index.html and clicking on the Interactive Study Guide. If you have any questions/problems, please e-mail us (see below).

As far as labs go, we will meet during Periods 8+9 on all Thursdays. Most Thursdays, lab will run after school to approximately 4:30 pm--sometimes a little earlier and sometimes a little later. Though this is a large time commitment, you will leave lab with your lab write-up completely done. Athletes are expected to be in lab after school unless there is a game or a meet. Conflicts will be handled on a case-by-case basis.

Summary of the first few days of school:

Wed. September 5: **Full summer assignment (HW #1-1 and #2-1) will be checked at start of class. (10 pts).**

In class, we will mainly discuss Chapter 1 and HW #1-1.

You will have another homework to do this Wed night that will be assigned later.

Thur. September 6: In class, during periods 8+9 we will continue to discuss Chapter 1 and Chap 2.

We will discuss HW #2-1. You will have another HW to do this Thurs night that will be assigned later.

We will NOT be staying after school this day. Staying after school for labs will begin Thurs, Sept 14.

Friday, September 7: Last chance to discuss Chap 1+2. We will start Chapter 3 in class.

Monday, September 10 ~~Friday, September 14~~: **TEST: Chapters 1+ 2 (70 pts)**

Enjoy your summer...see you in September!

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Summer Assignment

- This full assignment (HW # 1-1 and HW #2-1) is due on the 1st day of school—Wednesday, September 5.
- This assignment will count as a 10 point homework assignment for the 1st quarter.
- We expect you to read the book to brush up on the material in chapter 1+2.
- You must show your work to get credit for the homework. For calculation questions, you must use factor label method (unit conversions or dimensional analysis). Thus, every number must have units. This factor label method is crucial in this course because it allows you to show your work for multistep calculations quickly, clearly and fully.
- Please write all final answers with the proper number of significant figures. For more help on significant figures, it is suggested that you do the Significant Figures WKS that we have given you.
- For more help with acid naming, it is suggested that you do the Naming Acids WKS that we have given you.

Chapter 1

READ CHAPTER 1

HW #1-1: DO PROBLEMS, pg. 32 #3, 11, 12, 14, 15, 16, 17, 18, 21, 22, 25, 28, 29, 33, 35, 36, 37, 39, 41, 47, 49, *64, 75, 79, 81, 83, 85.

Important information to help solve these problems:

1 kg = 2.205 lbs 1 ton = 2000 lbs 1 mi = 1.609 km 1 in = 2.54 cm
Speed of light = $c = 3.00 \times 10^8$ m/s 1 mL = 1 cm³
V of a cylinder = $\pi r^2 h$

Chapter 2

READ CHAPTER 2

HW # 2-1: DO PROBLEMS pg. 69 #2, 3, 7, 11, 13, 15, 17, 20, 21, 22, 27, 28, 30, 31, 33, 35, 38, 40, 41, 43, 45, 47, 49, 55, 56, 57, 58, 60, 61, 64, 67, 69, 71, 87

For extra practice and explanation, it is suggested that you do the **significant digits WKS** and the **Naming acids WKS** that have been given to you. The answer keys will be posted on Dr. Casagrande's website in mid-August.

Common Polyatomic Ions: You will NOT need to memorize these. You will be given this chart on tests!

<u>1- Charge</u>		<u>2- Charge</u>	
OH ⁻	hydroxide	SO ₄ ²⁻	sulfate
CN ⁻	cyanide	SO ₃ ²⁻	sulfite
MnO ₄ ⁻	permanganate (purple)	S ₂ O ₃ ²⁻	thiosulfate
CH ₃ COO ⁻	acetate	CrO ₄ ²⁻	chromate (yellow)
SCN ⁻	thiocyanate	Cr ₂ O ₇ ²⁻	dichromate (orange)
NO ₃ ⁻	nitrate	CO ₃ ²⁻	carbonate
NO ₂ ⁻	nitrite	C ₂ O ₄ ²⁻	oxalate
ClO ₄ ⁻	perchlorate	O ₂ ²⁻	peroxide
ClO ₃ ⁻	chlorate	HPO ₄ ²⁻	hydrogen phosphate
ClO ₂ ⁻	chlorite	<u>3- Charge</u>	
ClO ⁻	hypochlorite	PO ₄ ³⁻	phosphate
BrO ₄ ⁻	perbromate	PO ₃ ³⁻	phosphite
BrO ₃ ⁻	bromate	<u>+1 Charge</u>	
BrO ₂ ⁻	bromite	NH ₄ ⁺	ammonium
BrO ⁻	hypobromite	Ag ⁺	silver ion
IO ₄ ⁻	periodate	<u>+2 Charge</u>	
IO ₃ ⁻	iodate	Zn ²⁺	zinc ion
IO ₂ ⁻	iodite	Cd ²⁺	cadmium ion
IO ⁻	hypoiodite		
HS ⁻	hydrogen sulfide (bisulfide)		
HSO ₄ ⁻	hydrogen sulfate (bisulfate)		
HSO ₃ ⁻	hydrogen sulfite (bisulfite)		
HCO ₃ ⁻	hydrogen carbonate (bicarbonate)		
HC ₂ O ₄ ⁻	hydrogen oxalate (binoxalate)		
H ₂ PO ₄ ⁻	dihydrogen phosphate		

Prefixes Used with SI Units

Prefix	Symbol	Meaning	Example
Tera-	T	1,000,000,000,000 or 10 ¹²	1 terameter (Tm) = 1×10 ¹² m
Giga-	G	1,000,000,000 or 10 ⁹	1 gigameter (Gm) = 1×10 ⁹ m
Mega-	M	1,000,000 or 10 ⁶	1 megameter (Mm) = 1×10 ⁶ m
Kilo-	k	1,000 or 10 ³	1 kilometer (km) = 1×10 ³ m
Deci-	d	1/10 or 10 ⁻¹	1 decimeter (dm) = 1×10 ⁻¹ m
Centi-	c	1/100 or 10 ⁻²	1 centimeter (cm) = 1×10 ⁻² m
Milli-	m	1/1000 or 10 ⁻³	1 millimeter (mm) = 1×10 ⁻³ m
Micro-	μ	1/1,000,000 or 10 ⁻⁶	1 micrometer (μm) = 1×10 ⁻⁶ m
Nano-	n	1/1,000,000,000 or 10 ⁻⁹	1 nanometer (nm) = 1×10 ⁻⁹ m
Pico-	p	1/1,000,000,000,000 or 10 ⁻¹²	1 picometer (pm) = 1×10 ⁻¹² m