

Fall 2018



CHM 152 General Chemistry II



INSTRUCTOR: Dr. Paul Gilletti

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Web Page: <http://www.mc.maricopa.edu/~paudy84101/> (Many of my Powerpoint presentations and old quizzes and exams are available)

Office Hrs PS-209: M 8:00-8:50, T 10:30-11:20, W 2:30-3:20, R 10:30-11:20, F 10:00-10:50

(Tutoring Center (PS-100): Friday 11:00-11:50)

and by appointment. **..DROP IN I GET LONELY...**

****As demand arises and time permits, I will try to schedule review sessions. If you are having difficulty, please see me for help. CHM 152 is a somewhat difficult class, don't get behind!**

REQUIRED TEXT: CHEMISTRY, 12th ed. Raymond Chang and Kenneth A. Golbsby. The accompanying Student Solutions Manual is **STRONGLY RECOMMENDED** (If you purchase new textbook package (12th ed.), it will give you access to the e-book, Connect on-line Homework, and Learn Smart, but this is not necessary. A copy of the Student Solution Manual is available in the Tutoring Center (PS-100) and on reserve in the library. Most of the assigned problems will have solutions worked out in the Student Solutions manual.

REQUIRED ITEMS: Calculator with scientific notation (log, ln, x^y).

A **Separate, Homework Only Notebook** (Thin spiral type) is required for assigned homework problems. Homework notebooks will be inspected during each exam and students will be given 0-6 points extra credit on their *cumulative* score. I suggest you work problems in detail with reference notes written to yourself on how you solved the problems, i.e. followed example on page 127, this will enable you to form a study guide and to review more efficiently for exams.

HOMEWORK: (Homework points are *bonus points* which can raise your letter grade) You may choose one of the options below **or mix them** if you desire, since some answers can be difficult to answer in the **CONNECT PROGRAM**. Try to work homework at the pace of the lecture.

(OPTION 1) Connect Chemistry :

This is an on-line electronic homework system that gives you feedback and assistance when you are working problems. We will be using this system this semester. If you bought the book package at the bookstore, the Connect Plus system came with it. Connect Plus also contains the e-book; whereas Connect is just the electronic homework system. Students will be given 2 Bonus points (extra) credit for each chapter on their CUMULATIVE score

Learn Smart: is also contained in the Connect System and uses artificial intelligence to assess your knowledge of the material and to guide you learning. This can be very useful to assess your understanding of the material.

OPTION 2 for those who choose not to use Connect Chemistry) : A SEPARATE, Homework Only Notebook . THE ASSIGNED PROBLEMS ARE LOCATED IN THIS DOCUMENT.

(Thin spiral or stitched composition type) is required for assigned homework problems. Homework notebooks will be inspected during each exam and students will be given 2-3 Bonus points (extra) credit for each chapter on their CUMULATIVE score. I suggest you work problems in detail with reference notes written to yourself on how you solved the problems, i.e. followed example on page 127, this will enable you to form a study guide and to review more efficiently for exams. There is a very strong correlation between the amount of homework done and exam scores

OPTION 3.....you may do parts of CONNECT and the book homework if you choose and I will adjust your scores accordingly.

CELL PHONES: MAY NOT BE USED DURING CLASS and NO TEXTING.

COMPUTERS are available to students in the library. If you have problems running any of the software, be sure to ask the personnel or see me.

Other Practice tests on the Internet (different books):

Silberberg Book (4th edition): This site provides practice quizzes that are graded online and other learning aides:

http://highered.mcgraw-hill.com/sites/0072396814/student_view0/index.html This site will show:

Chem 161 textbook website – Bad Request – McGraw-Hill Education. If you click on this statement, it will take you to the book site. Once there, you may select chapters and practice quizzes.

9th Ed of Brown and Lemay. This contains practice quizzes and exams that are graded online. It is good practice for quizzes and exams.

http://wps.prenhall.com/esm_brown_chemistry_9/1,4647,169060,.html

PREREQUISITES: Completion of CHM 151, CHM151LL (Preferably within the last year) and MAT 151 or higher with a "C" or better.

ATTENDANCE: Attendance will be taken each class period and a withdrawal (W/Y) **MAY** be initiated after four absences. Withdrawal from class is the student's responsibility. See the current Mesa Community College catalog and paragraph below for withdrawal procedures. If you do not take the final exam, you will be given a withdrawal.

STUDY HABITS AND WORK ETHIC: This class is a big step up from CHM 151. It requires a great deal of time to master the material covered in this course. Students who attend class regularly and work assigned problems have a much greater success rate. It is strongly suggested that you study a minimum of THREE HOURS for every lecture hour. If your background is weak, you should plan on spending more time. **DO NOT GET BEHIND.** **FREE TUTORING is available in PS-100 (drop in), SMARTTHINKING online tutoring (<http://www.mesacc.edu/library/LE/smart-thinking.html>), Departmental review and tutoring sessions**, and during my office hours. **I also recommend forming study groups.** Please see me if you are having difficulty.

ACADEMIC DISHONESTY POLICY: See the current MCCD student handbook on the academic dishonesty policy. Academic dishonesty may include: representation of the work of other's as

one's own, use of unauthorized assistance in academic work, failure to cite sources used, copying the work of another student on any form of a test, helping others cheat, etc. Repercussions can be found in the student handbook and range from a warning to dismissal from the course with a failing grade.

WITHDRAWAL: See your student schedule in *my.maricopa.edu* for the Last Day to Withdraw without an Instructor Signature for each class in which you are enrolled (This is the first seven weeks from when the class started). After that time your instructor's signature is required. (Refer to the Important Deadlines for Students to determine the Last Day Student Initiated Withdrawal will be accepted.) . Either a withdrawal passing (W) or a withdrawal failing (Y) may be given, based upon student performance***.

Information for Students with Disabilities: If you have a documented disability, including a learning disability, and would like to discuss possible accommodations, please contact the MCC Disabilities Resources and Services Office at [480-461-7447](tel:480-461-7447) or email drsfrontdesk@mesacc.edu.

Students with disabilities must have an equally effective and equivalent educational opportunity as those students without disabilities. Students experiencing difficulty accessing course materials because of a disability are expected to contact the course instructor so that a solution can be found that provides all students equal access to course materials and technology.

Information for Pregnant or Parenting Students: If you are a pregnant or parenting student you are protected under Title IX regarding classroom accommodations. Please request your accommodations through the MCC Disabilities Resources and Services Office at [480-461-7447](tel:480-461-7447) or email drsfrontdesk@mesacc.edu.

EARS (Early Alert Referral System)
MCC Early Alert Program (EARS)

Mesa Community College is committed to the success of all our students. Numerous campus support services are available throughout your academic journey to assist you in achieving your educational goals. MCC has adopted an Early Alert Referral System (EARS) as part of a student success initiative to aid students in their educational pursuits. Faculty and Staff participate by alerting and referring students to campus services for added support. Students may receive a follow up call from various campus services as a result of being referred to EARS. Students are encouraged to participate, but these services are optional. Early Alert Web Page with Campus Resource Information can be located at: <http://www.mesacc.edu/students/ears> or locate the "Early Alert" selection at the "mymcc" link from MCC's home page.

DATES:

LABOR DAY: Sept. 3 NO CLASS

VETERANS' DAY: Nov 12 NO CLASS

THANKSGIVING HOLIDAY: NOV 22-25

LAST DAY OF CLASS: Dec. 9

FINAL EXAM: TR 9:00 a.m. class.....Tuesday Dec. 11th 9:00-10:50 a.m.

I use the American Chemical Society's Standardized First Term Final Exam. Study guides are available in the library reserve as well as a few for check out. If you wish to order your own copy the link is: <https://uwm.edu/acs-exams/>

GRADING POLICY:

Quizzes: At least 9 quizzes worth 25 points each will be given and 8 scores will be counted. 10 to 15 minutes will be allowed for each quiz.

Exams: 3-4 exams---100 points each. Times will be announced at least one week in advance as course dictates.

Final examination--200 points (comprehensive).

Howework: Bonus points as described above in required items section.

A	B	C	D
90-100%	80-90%	70-80%	60-69% (of CURVED HIGH TOTAL)

NO Quizzes or exams will be given after the scheduled times. Extraordinary circumstances may dictate otherwise. 0-5 Points will be given for homework, added to each exam as stated above.

*** Lab is a separate one-credit (CHM 152LL) course. Unless previously taken, a student must be enrolled in a lab.

COURSE COMPENTENCIES: <http://www.dist.maricopa.edu/cgi-bin/cpr.pl?trm=20022&crs=chm152&inst=99>

General Information: (we will cover chapters 13-19 CHM152)

ALL worked problems should be kept in a SEPARATE, homework only, spiral notebook to be handed in. Please write in the starting time (and date) and ending time of each problem working session to help you in "time tracking". When working problems you should show as much detail as possible including writing notes to yourself and reference pages so studying at test time becomes a review and your homework notebook is your study guide. Bonus Points: 0-5 Points will be given for homework in homework notebook, added at the time of each exam.

Hint: When solving problems always determine what is being asked first and its units (and if necessary, its place in a formula), then what is given and its units (and if necessary, how it fits in a formula), and finally convert what is given into what is desired to solve the problem.

Answers to the Blue end of chapter problems are located beginning on Page A10 (Appendix E) near end of book. More detailed solutions are found in the student solution manual. **THE STUDENT'S SOLUTION MANUAL IS A VERY USEFUL RESOURCE WHEN DOING PROBLEMS, I HIGHLY RECOMMEND IT.**

OVERVIEW OF TEXTBOOK: MATH REVIEW (consult when necessary)

CHEMISTRY , 12th ed. Raymond Chang and Kenneth A. Golbsby

Inside of covers: Front has periodic table. Back has useful physical constants, **conversion factors**, and location of tables. In addition it is recommended that frequently used numbers be written inside the covers for quick reference.

Appendix 1. Page A-1: Derivation of the Names of the Elements.

Appendix 2. Page A-7: Units for the Gas Constant.

Appendix 3. Page A-8: **THERMODYNAMIC QUANTITIES FOR SELECTED SUBSTANCES.**

Appendix 4: Page A-13: **MATH REVIEW** (consult when necessary)

Glossary: Page G1

Page AP-1: **Answers to Selected Exercises found within the chapters.**

Refer to Back Cover for:

Fundamental constants

Conversion factors

SI units and prefixes

Lists of tables (useful for many of the assigned problems)

Note: The **Student Solutions Manual** provides detailed solutions for most of these problems.

******ASSIGNED PROBLEMS******

Remember You Have the Option to do the On-line Connect Homework Instead.

Chapter 13 Rates of Reactions Suggested Problems for – KINETICS: Rates and Mechanisms of Chemical Reactions. *To be done in your HOMEWORK NOTEBOOK* see syllabus for details.

Order in [A]	Rate Law*	Integrated Rate Law y = mx + b form	Linear Graph ? vs t	Slope of Line Equals	Half life Equations
0	rate = k	$[A]_t = -kt + [A]_0$	$[A]_t$	-k	$t_{1/2} = [A]_0/2k$
1	rate = k[A]	$\ln[A]_t = -kt + \ln[A]_0$	$\ln[A]_t$	-k	$t_{1/2} = 0.693/k$
2	rate = k[A] ²	$1/[A]_t = kt + 1/[A]_0$	$1/[A]_t$	k	$t_{1/2} = 1/k[A]_0$

*Since the units of rate are concentration/time, the units of k (the rate constant) must dimensionally agree. So for each order, k will have different units and these units can be used to tell one which equation to use. A [] means the concentration of the enclosed species.

Arrhenius Equation:

logarithmic form (used in graphing to find E_a): $\ln k = \ln A + [(-E_a/R) (1/T)]$

note: form is $y = b + mx$ where $y = \ln k$, $m = -E_a/R$, $x = 1/T$, and $b = \ln A$ so a plot of $\ln k$ against $1/T$ would be a straight line with the slope = $-E_a/R$.

Two Point form: $\ln(k_2/k_1) = (E_a/R)(1/T_1 - 1/T_2)$ using this form, a rate constant can be calculated at different temperatures. *Note: there are different forms of this equation which are derived by different algebraic manipulations.

Chapter 13 “Chemical Kinetics”: Read the chapter and look through the “summary of Facts and Concepts on page 608 and the Review questions 13.1- 13.4 on page 609. The Key Equations on are page 610.

Assigned Problems (pages 611-622): **6, 8,** (read and understand 9-12), **14** (read the surrounding text to first find the rate law), **16** (you must determine the value of k to do b), **18,** (read and understand 22-24), **26, 28,** (read and understand 31-35), **38, 40, 42, 44, 46,** (read and understand 48-54), **56, 57, 58,** (read and understand 59-64), **66, 68, 70, 74a and b, 78, 82, 88, 92, 94, 96, 100, 102** (try using computer graphing), **106, 110, 116, 118, 134.**

Chapter 14
HOMEWORK



Chemical
NOTEBOOK



Equilibrium. To be done in your
see syllabus for details.

For reaction: $aA + bB \rightleftharpoons cC + dD$

$$K_c = \frac{[C]^c [D]^d}{[A]^a [B]^b}$$

“products raised to their coefficients over reactants raised to their coefficients” Solids (and water in high concentrations) are ignored.

$$Q = \frac{[C]^c [D]^d}{[A]^a [B]^b}$$

Capital K is the equilibrium constant .

Capital Q is the reaction quotient. At equilibrium $Q = K$.

We also have a K_p which is often used for gases. Instead of Molarity, [], the gas concentrations are expressed as their pressure. $K_p = K_c(RT)^{\Delta n}$ where "delta n" is the change in moles of gas in the reaction.

If two or more reactions can be summed up to give a third reaction, then the equilibrium constant for that reaction is the product of the equilibrium constants of those reactions.

It is often helpful to use an I.C.E. (initial, change, equilibrium) chart in setting up and solving problems.

*****Be sure to read and study **Le Chatelier's principle**.

Chapter 14 "Chemical Equilibrium": Read the chapter and look through the "summary of Facts and Concepts on page 654 and the Review questions 14.1- 14.12 on page 655. The Key Equations on are page 656.

Assigned problems (page 656-667): 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, (read and understand 33 and 34), 36, (read and understand 38), 40, 42, 46a, 48 (perfect square), 54, 56, 58, 60, 62, 68, 70, 72, 86, 94, 100, 102.

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Chapter 15: Acids and Bases:

(Seven Strong Acids: HClO_4 , HClO_3 , H_2SO_4 , HI , HBr , HCl , HNO_3 [the corresponding Br and I oxyacids are also strong). All the other acids will be considered weak acids unless otherwise stated.

Strong Bases: Group 1 and Group II from $\text{Ca}(\text{OH})_2$ on down. (There are stronger bases about which you will learn in organic chemistry.)

KEY EQUATIONS: (Page 708)

$[\text{H}^+][\text{OH}^-] = K_w = 1.0 \times 10^{-14}$ at 25°C , but value changes with temperature.

$\text{pH} = -\log[\text{H}^+]$ **note this is log base 10, not natural log.**

$\text{pOH} = -\log[\text{OH}^-]$

$\text{pH} + \text{pOH} = 14$ @ 25°C

For weak acids and bases:

$K_a = \frac{[\text{H}^+][\text{A}^-]}{[\text{HA}]}$ or $\frac{[\text{H}_3\text{O}^+][\text{A}^-]}{[\text{HA}]}$

$K_b = \frac{[\text{HB}^+][\text{OH}^-]}{[\text{B}]}$

Also: $K_a K_b = K_w = 1 \times 10^{-14}$ @ 25°C

Chapter 15 : "Acids and Bases": Read the chapter and look through the "summary of Facts and Concepts on page 709 and the Review questions 15.1- 15.2 on page 709. The Key Equations on are page 710.

Assigned problems (page 709-719): Know definitions of acids and bases. 4, 6, 8, (read and understand 9-14), 16, 18, 20, 22 (assume 25°C), 24, 26, (read and understand 27-30), 33, 34, 36, 38, (read and understand 39-42), 44, 46 (you will need to look up the K_a value), 48, 50, (read and understand 51-52), 54, 56, 58, (read and understand 59-60), 64, 68, 70, 72, (read and understand 73-76), 78, 80, 82, 84, 91, 92, 94, 98, 102, 104, 110, 112, 116, 130, 134, 149.

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Chapter 16: Acid-Base Equilibria and Solubility Equilibria.

(Seven Strong Acids: HClO₄, HClO₃, H₂SO₄, HI, HBr, HCl, HNO₃ (analogous acids HBrO₄, HIO₄, HBrO₃, and HIO₃ are also strong). All the other acids will be considered weak acids unless otherwise stated.)

Strong Bases: Group 1 and Group II from Ca(OH)₂ on down. (There are stronger bases about which you will learn in organic chemistry.)

KEY EQUATIONS:

$[H^+][OH^-] = K_w = 1.0 \times 10^{-14}$ at 25°C, but value changes with temperature.

pH = $-\log[H^+]$ **note this is log base 10, not natural log.**

pOH = $-\log[OH^-]$

pH + pOH = 14 @ 25°C

For weak acids and bases:

$K_a = \frac{[H^+][A^-]}{[HA]}$ or $\frac{[H_3O^+][A^-]}{[HA]}$

$K_b = \frac{[HB^+][OH^-]}{[B]}$

Also: $K_a K_b = K_w = 1 \times 10^{-14}$ @ 25°C

Henderson-Hasselbach equation: $pH = pK_a + \log \frac{[\text{conj. base}]}{[\text{acid}]}$

Try deriving an equivalent pOH = pK_b expression from $K_b = \frac{[\text{conj. acid}][OH^-]}{[\text{base}]}$

Chapter 16 “Acid-Base Equilibria and Solubility Equilibria”: Read the chapter and look through the “summary of Facts and Concepts on page 766 and the Review questions 16.1- 16.4 on page 764. The Key Equations on are page 763.

Assigned Problems (pages 764-775): (On many of these problems you will have to look up the values of K_a or K_b, also be sure to look at Henderson-Hasselbach equation.) **6, 10, 12, 14, 16, 18, 20, 24, 26, 28** (this problem is similar to the lab dealing with the molar mass of a weak acid), **30, 34, 36, 40** (this problem is similar to the lab dealing with the molar mass of a weak acid), (read and understand 41-42), **46, SOLUBILITY:** (read and understand 47-52), **54, 58, 60, 64,** (read and understand 65), **68, 70, 72, 74, 82, 84** (You must use table 16.4), **110, 128, 142, 145, 146.**

Chapter 17 “Entropy, Free Energy, and Equilibrium” *Be sure to Review Chapter 6 (Thermochemistry)*

”: Read the chapter and look through the “summary of Facts and Concepts on page 803 and the Review questions 17.1- 17.4 on page 806. The Key Equations on are page 804.

Assigned Problems (pages 806-813): (read and understand 7-8), **10, 12, 14,** (read and understand 15-16), **18** (refer to appendix 3), **20,** (read and understand 21-22), **24, 26, 28** (note the difference between ΔG° and ΔG), **32, 46, 52, 56, 58, 60, 62, 64, 66, 70, 74, 86, 94** (you must first calculate ΔH).

Summary:

ΔU = q + w (some books use ΔE = q + w)

ΔH = negative, favours spontaneity

ΔH = positive, favours non-spontaneity

$$\Delta H = H_{\text{final}} - H_{\text{initial}}$$

$$\Delta H = H(\text{products}) - H(\text{reactants})$$

$$\Delta H_{\text{rxn}}^{\circ} = \sum m\Delta H_f^{\circ}(\text{products}) - \sum n\Delta H_f^{\circ}(\text{reactants})$$

ΔS = positive, favours spontaneity

ΔS = negative, favours non-spontaneity

reversible process: $\Delta S_{\text{universe}} = 0$

Irreversible process: $\Delta S_{\text{universe}} > 0$

$$\Delta S = q_{\text{rev}}/T \quad (@ \text{ constant } T)$$

$$\Delta S = \Delta H_{\text{vap}}/T_{\text{boiling}}$$

$$\Delta S^{\circ} = \sum m\Delta S_f^{\circ}(\text{products}) - \sum n\Delta S_f^{\circ}(\text{reactants})$$

ΔG = negative, the reaction **is** spontaneous in the forward direction.

ΔG = zero, the reaction **is** at equilibrium.

ΔG = positive, **the reaction in the forward direction is nonspontaneous** and work must be supplied from the surroundings to make it occur. However, the reverse reaction will be spontaneous.

$$G = H - TS \quad (\text{relate this formula to table 19.4 on page 735})$$

$$\Delta G = \Delta H - T\Delta S$$

$$\Delta G^{\circ} = \sum m\Delta G_f^{\circ}(\text{products}) - \sum n\Delta G_f^{\circ}(\text{reactants})$$

$$\Delta G = \Delta G^{\circ} + RT \ln Q \quad @ \text{equilibrium } \Delta G = 0 \text{ so } \Delta G^{\circ} = -RT \ln K$$

$$\Delta G^{\circ} \text{ negative: } K > 1 \quad (\text{the more negative } \Delta G^{\circ}, \text{ the larger the value of } K_{\text{equilibrium}})$$

$$\Delta G^{\circ} \text{ zero: } K = 1$$

$$\Delta G^{\circ} \text{ positive: } K < 1$$

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Chapter 18 “Electrochemistry”: Read the chapter and look through the “summary of Facts and Concepts on page 848 and the Review questions 18.1- 18.13 on page 848. The Key Equations on are page 848.

Assigned Problems (pages 849-860): 2, (read and understand 3-10), 12, 14, 16, 18, 20, 24, 26a,&b, (read and understand 29), 32, 36, (read and understand 37, 45), 48, 52a&b, 70, 104.

$$A = C/s \quad J = V \cdot C \quad F = 9.65 \times 10^4 \text{ C/mole (of } e^{-}\text{)} = 9.65 \times 10^4 \text{ J/V} \cdot \text{mole (of } e^{-}\text{)}$$

$$1 \text{ V} = 1 \text{ J/C} \quad R = 8.314 \text{ J/mol} \cdot \text{K}$$

$E^{\circ} = E^{\circ}_{\text{ox}} + E^{\circ}_{\text{red}}$ (a positive value is spontaneous) note: this is a different equation than that found in your book

$$\Delta G = -nFE \quad \Delta G = -nFE^{\circ}$$

$$\text{Nerst Equation: } E = E^{\circ} - \frac{RT}{nF} \ln Q \quad \text{or @ } 25^{\circ} \text{C} \quad E = E^{\circ} - \frac{0.0257}{n} \ln Q$$

$$\ln K = \frac{nE^{\circ}}{0.0257} \quad @ 25^{\circ} \text{C}$$

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Chapter 19 “Nuclear Chemistry”: Read the chapter and look through the “summary of Facts and Concepts on page 891 and the Review questions 19.1- 19.6 on page 892. The Key Equations on are page 890.

Assigned Problems (pages 894-899): 8, (read and understand 9-14), **18, 20, 22a, 26, 28, 30, 34, 38,** (read and understand 41-50), **56, 64, 70, 72, 74, 88.**

NOTE: Nuclear decay is just first order kinetics. The formulas below are really the same as the formulas for 1st order kinetics. The variables are changed from [A]₀ and [A]_t to N₀ and N_t and the equations have been rearranged.

$$\ln \frac{N_t}{N_0} = -kt \quad \text{or} \quad \ln N_t = -kt + \ln N_0 \quad \text{and} \quad k = \frac{\ln 2}{t_{1/2}} = \frac{0.693}{t_{1/2}}$$
$$\ln N_t = -\lambda t + \ln N_0 \quad \lambda = \frac{\ln 2}{t_{1/2}} = \frac{0.693}{t_{1/2}}$$

**** The above material is subject to change.

PERIODIC TABLE OF THE ELEMENTS

1A																8A		
1 H 1.008																2 He 4.003		
2A												3A	4A	5A	6A	7A		
3 Li 6.941	4 Be 9.012											5 B 10.81	6 C 12.01	7 N 14.01	8 O 16.00	9 F 19.00	10 Ne 20.18	
11 Na 22.99	12 Mg 24.31											13 Al 26.98	14 Si 28.09	15 P 30.97	16 S 32.07	17 Cl 35.45	18 Ar 39.95	
		3B	4B	5B	6B	7B	8B				1B	2B						
19 K 39.10	20 Ca 40.08	21 Sc 44.96	22 Ti 47.88	23 V 50.94	24 Cr 52.00	25 Mn 54.94	26 Fe 55.85	27 Co 58.93	28 Ni 58.69	29 Cu 63.55	30 Zn 65.39	31 Ga 69.72	32 Ge 72.61	33 As 74.92	34 Se 78.96	35 Br 79.90	36 Kr 83.80	
37 Rb 85.47	38 Sr 87.62	39 Y 88.91	40 Zr 91.22	41 Nb 92.91	42 Mo 95.94	43 Tc (98)	44 Ru 101.1	45 Rh 102.9	46 Pd 106.4	47 Ag 107.9	48 Cd 112.4	49 In 114.8	50 Sn 118.7	51 Sb 121.8	52 Te 127.6	53 I 126.9	54 Xe 131.3	
55 Cs 132.9	56 Ba 137.3	57 La 138.9	72 Hf 178.5	73 Ta 181.0	74 W 183.8	75 Re 186.2	76 Os 190.2	77 Ir 192.2	78 Pt 195.1	79 Au 197.0	80 Hg 200.6	81 Tl 204.4	82 Pb 207.2	83 Bi 209.0	84 Po (209)	85 At (210)	86 Rn (222)	
87 Fr (223)	88 Ra 226.0	89 Ac 227.0	104 Unq (261)	105 Unp (262)	106 Unh (263)	107 Uns (262)	108 Uno (265)	109 Une (266)										

58 Ce 140.1	59 Pr 140.9	60 Nd 144.2	61 Pm (145)	62 Sm 150.4	63 Eu 152.0	64 Gd 157.3	65 Tb 158.9	66 Dy 162.5	67 Ho 164.9	68 Er 167.3	69 Tm 168.9	70 Yb 173.0	71 Lu 175.0
90 Th 232.0	91 Pa 231.0	92 U 238.0	93 Np 237.0	94 Pu (244)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (251)	99 Es (252)	100 Fm (257)	101 Md (258)	102 No (259)	103 Lr (260)

Student Study Schedule

Use this schedule to plan your week. Schedule chemistry and other classes or labs. Allow two to three study hours between each chemistry lecture before the next lecture occurs. Allow study time for all classes and labs. Then include work, travel time, family time, meals, sleep, exercise, etc. Remember you NEED SLEEP.

Time	Monday	Tuesday	Wednesday	Thursday	Friday
5-6					
6-7					
7-8					
8-9					
9-10					
10-11					
11-12					
12-1					
1-2					
2-3					
3-4					
4-5					
5-6					
6-7					
7-8					
8-9					
9-10					
10-11					
11-12					

WEEKEND STUDY TIMES. DON'T WASTE FRIDAY AFTERNOON AND EVENING AS WELL AS SATURDAY AND SUNDAY.

Use the following directions if you choose to purchase and use the on-line homework option.



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student registration information

course

CHM 152 Fall 2018
with LearnSmart and LearnSmart Prep

instructor

Paul Gilletti

section

CHM 152 Fall 2008 24484

online registration instructions

Go to the following web address and click the "register now" button.

<http://connect.mheducation.com/class/p-gilletti-chm-152-fall-2018-24484>

This is a unique address for
CHM 152 Fall 2008 24484

Having trouble registering?
Get help here: <http://bit.ly/StudentRegistration>

CHEMISTRY INFORMATION

Please complete and return at the time of the next class meeting.

Semester: Fall Year: 2018 Course: CHM152 Section: 24484

Name: _____ Phone: _____

e-mail: _____

Major **and** CAREER Goal*: _____

Number of Hours You Are Working per Week (Please consider family responsibilities and volunteer hours when considering your course load below): _____

Number of Credit Hours You are Taking: _____

Previous <u>Chemistry</u> Courses Taken:	<u>Date Taken</u>	<u>Name and/or Location of School</u>
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High School Course(s): _____	_____	_____
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_____	_____	_____
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College Chemistry Course(s): _____	_____	_____
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_____	_____	_____
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Highest Level Math you have completed: _____

Math Currently being taken: _____

Future Chemistry courses that you are planning to take at MCC:

Write a brief statement detailing the combination of work ethic, ability, time commitment, and grades that are required to succeed in the major and career goal that you listed above.

I have received the syllabus and am responsible for its content _____ (signature)