Indiana Academy AP Chemistry Course Information Fall 2021

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- It is *very important* to me to respond to your questions or concerns promptly; however, please note that I do receive *a lot* of emails. If for some reason I do not respond within 24 hours, please resend your original email and/or leave me a voicemail message (765-285-7456).
- Please note that if you email me after midnight, it is highly unlikely that I will read that email until sometime the following morning.

Meeting Times:

- **1:00- 1:55 MWF Room: Burris 210**
- Lab: Tuesday 10 - 12

Office Hours

- Monday: My office: 8 a.m. – 10 a.m.
- Wednesday: My office: 4 p.m. – 6 p.m.
- Thursday: Burris 210: 8 a.m. – 11 a.m.
- Friday: My office: 8 a.m. – 10 a.m.

I can also meet by appointment.

Course Overview

This is an accelerated course designed to review and extend the concepts introduced in General Chemistry. It is comparable to a course for science majors in freshman college chemistry. Advanced laboratory work is emphasized. This course is designed for students who hope to advance place in college chemistry and/or whose career goals include science, engineering or the medical sciences. Many students consider this class to be one of the most difficult classes they have ever taken.

* Ball State University offers 4 college credit hours in CHEM 111 and 112 to students who complete this course.

Textbook:

Chemistry, 9th Ed.; Zumdal and Zumdal (2017)

Philosophy

Learning is NOT a spectator sport. The ultimate responsibility for success in learning lies with you, the student. Learning is a process by which a person seeks to make sense out of the world. The view of the world or any part of it, held by a person is as individual as fingerprints. The only way we are able to share knowledge is by verbal and written communication. The quality of the communication depends on the quality of the language used. A teacher is a facilitator for learning. The teacher structures experiences which provide the maximum probability that students can make sense out of the material presented.

Role of the Teacher

My responsibility is to present experiences that will assist you to make sense out of chemistry. These experiences can be altered, based on your input, to improve your chances of being successful. It is imperative that communications are two way so that we can remain informed about how you view the concepts we are studying.

It is also my responsibility to design exams, quizzes, and lab assessments that fairly evaluate the level of your success. You have the right to know where you stand at all times during the semester and to ask when you do not understand why you were evaluated in a particular manner.

Your Role

You are in control of your success in this class. To some extent your success will be a function of your background, but the major factor in your success will be the quality and quantity of time and effort you put into your studies. You must keep in mind that 1) your principal job at this stage in your life is to be a student; and 2) chemistry is not the only course you are taking. You must balance your time such that you maximize success in all courses. I will provide several vehicles to assist you. You must elect to use them.

As this is a college course, you will need to spend approximately one to two hours outside of class on your studies for every hour you spend in class. This is a general guideline; some of you will spend less time and some will spend more. Before you get too far into the semester, you need to *sincerely evaluate your outside commitments and other courses to determine if you have the time needed to put into this course*.

Academic Integrity

Academic integrity is essential to the mission of the Academy. All students deserve a healthy learning environment and evaluations that are based on their honest independent efforts. A clear sense of academic honesty and responsibility is fundamental to good scholarship and learning.

You are encouraged to *form study groups and to problem solve together*. The normal expectation is that the work on exams is your own and that homework, take-home quizzes, and lab reports, while discussed with other students, is of your own creation. Academic dishonesty will not be tolerated. Please refer to the student handbook.

Examples of dishonesty include sharing your work with another student either electronically or on paper (including labs!), using another student's work to complete your work, and copying answers from the Internet or from the solution manual. You may use resources to help complete your work; you may not directly use another's work.

Homework

Your homework is designed to help you practice the problems typical of a college chemistry course. It is your responsibility to learn how to do these problems. Again, I encourage you to form study groups and work to solve the problems together; however, the ultimate goal is for you to learn how to solve these problems independently.

- At the end of each section, you will you have homework problems to do.
- They will be graded on completion.

The solution manual is posted on Canvas. It is a violation of copyright policy to download or print the manuals. The solution manual is there as a *teaching tool*.

Late Work

Late work is not accepted.

Quizzes

Every Wednesday you will have a polyatomic ion quiz that will contain a mix of the symbol and the terms. You will have five minutes to complete this quiz

- If you miss a quiz, **you** must schedule a time with me to take the quiz no later than the following Monday or you will earn a zero on the quiz.
- If you earn between 90 – 99% you are in the "cushion zone."
    - For example, say on the following week you earn less than 90%, your new score will be calculated as follows: $Score = Previous\ Score - (100 - New\ score)(10\%)$
    - If your score is still in the cushion zone, and then the following week you again earn less than 90%, your new score will be calculated as follows: $Score = Previous\ Score - (100 - New\ score)(20\%)$
    - Each successive week that your score is below 90%, the percentage will increase by 10%, until you are out of the cushion zone.
- If you earn consecutive 100's, then each week 10% will be added.
    - If you have bonus points, and you earn less than 90% on the following quiz your score will be calculated as follows: $Score = Previous\ Score - (100 - New\ score)$

Attendance/Tardies

It is extremely important that you attend ***all*** class periods. The pace of this course is extraordinarily fast and missing a day can seriously put you behind in this course; however, I do understand that absences happen. Please adhere to the following guidelines in the even you miss a class.

- If you are absent for a school scheduled event such as a field trip or a college trip, you are required to turn in your work ***prior*** to the trip *unless* alternate arrangements have been made with me *prior* to your trip.
- If you have an excused absence,
    - the work that was due on the day of your absence is expected the day you return
    - work that is due the day you return is expected the following class period
- Extended excused absences require that *you* generate a conversation with me *outside* of class so that we can work out a plan to get you caught up.
- Tardy is defined as arriving after class has started. After ten minutes, a tardy will be counted as absent.
- Sleeping in class – first offense will result in a warning, the second offense will result in an unexcused absence.
- No work will be accepted for an unexcused absence.

Cell phones/Computers/Tablets/Calculators

- Cells phones are not to be used in class.
    - Emergency calls can be taken in the hallway
    - During an exam, cell phones must be put on silent, airplane mode, or turned off.
- Computers and/or tablets may be used in class for taking notes.
    - If you are using a computer/tablet during class for anything outside of the scheduled activity/lecture, you will lose the privilege to use these devices during class.
- Occasionally you will need your computer for a lab – you will be given notice when you will need a lab for class.
- A TI-84 calculator (or equivalent) will be needed for this class

Laboratory

Many of the labs that you will do in class are inquiry based labs. *Labs make up 20% of your overall grade.* If you miss a lab (and it is an excused absence) then you will be required to make up the lab within six days of the missed lab; however, the due date will not change. You will not be allowed to simply use the data from your lab partner. Learning laboratory techniques is just as important as learning the concepts behind the labs.

- Lab work cannot not be made up for an unexcused absence.
- Sign and return the lab safety contract.

The prelab is extraordinarily important and you must be prepared to do the lab when you come to class. The prelab is on Canvas and you are expected to work as a group to complete the prelab. Failure to complete the prelab will be an automatic deduction of 50% from your lab assignment.

Exams

There will be five unit exams this semester. They will take approximately 110 minutes to complete encompassing more than one chapter, and each section will be timed. *Every exam is cumulative; however, the majority of the exam will focus on the section just covered.* The first part of your exam will contain multiple choice questions in which you will not be allowed to use a calculator and you may be required to justify the answer. The second portion of your exam will contain free response questions and you will be allowed to use a calculator. *Exams make up 50% of your overall grade.*

BSU Statement

"Ball State University aspires to be a university that attracts and retains a diverse faculty, staff, and student body. We are committed to ensuring that all members of the community are welcome, through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse as expressed in our Beneficence Pledge and through university resources found at http://cms.bsu.edu/campuslife/multiculturalcenter."

Mask Policy

The Indiana Academy will follow Ball State University's mask policy (see Section IV). Based on current CDC guidance recommending the wearing of face masks for all people—regardless of vaccination status—in public indoor settings in communities where the rate of coronavirus transmission is high or substantial, all employees, students, and campus visitors are required to wear a mask while inside any University building. This requirement is effective on August 9, 2021. Fully vaccinated people are not required to wear masks outdoors.

Individuals who are not fully vaccinated for COVID-19 are required to wear face masks while inside campus buildings and outside when physical distancing cannot be maintained.

If a student declines to wear a face mask as required, the student will be referred to the Director of Academic Affairs or the Director of Residential Affairs. If the situation occurs in a classroom or other academic setting, it is considered a classroom management issue, and the teacher will remind the student of the requirement and give the student a chance to comply with it prior to referring the matter to the Director of Academic Affairs or the Director of Residential Affairs. Wearing masks is crucial to preventing the spread of COVID-19 to others.

Grade Weights –

Weight	Description
50%	Exams
15%	Laboratory
10%	Quizzes
10%	Homework
15%	Final Exam
100%	Total

Grade Scale

Percentage	Letter Grade
100 – 84	A
<84 – 80	A-
<80 – 75	B
<75 – 70	B-
<70 - 60	C
<60 – 55	C-
<55	D*

Exam Taking Tips

Use the 3-Pass System:

1. Answer the questions that you know. Then…
2. Answer the stuff that you think you know. Then…
3. Finish what you can

Study Tips

1. Ask questions!
2. Rewrite your class notes with the textbook. Synthesize the two into one coherent document.
3. Ask questions!
4. Attend the help sessions.
5. Ask questions!
6. Form a study group.
7. Ask questions!

Additional Resources

http://www.khanacademy.org/science/chemistry

Video lessons! Everything you need to know about chemistry. If you search, you can find just about any topic including Calculus and History.

http://misterguch.brinkster.net/helpdesk2.html

Fairly basic, but the information is very helpful.

http://www.csudh.edu/oliver/demos/index.htm

Good videos on lab techniques

http://etc.usf.edu/clipart/index.htm

More video lessons both in chemistry and biology

http://www2.stetson.edu/mahjongchem/ - Chemistry mahjong – well, why not?

Laboratory Report

1. You will receive a handout prior to each lab. If there are prelab questions, they must be answered before the lab. It is ***strongly*** recommended that you read through the lab prior to doing the lab. Our lab time is *very* limited, and if you spend your time wisely, you can finish most labs within one class period provided **you come to class prepared to do the lab.**

2. You **must show** a sample calculation in every instance, even for calculations done in a spreadsheet. [**Hint**: do calculations on scrap paper first!] All calculations must be presented neatly, complete, and include correct labels and units. All sample calculations must be typed.
    a. In Microsoft Word, you can use the Equation toolbar
        i. Find the "Insert" tab and then click on it
        ii. At the far right you should see a pi symbol with the word Equation next to it. Click on the drop down arrow
        iii. Click on "insert new equation." This will bring up the tools you need to enter a sample calculation into your lab report.

3. Writing must be legible, neat, and given adequate space to clearly show your work. When analyzing class data on a spreadsheet, present statistics (mean, standard deviation, precision, and when appropriate, the accuracy) on the results, not on the data [see Simple Statistics]. **Spreadsheets on which class data is analyzed must be stapled to your lab report**. For **qualitative experiments**, you will probably need a chemical equations section. On occasion, you will need both sections.

4. When graphs are to be done, use Excel (or an equivalent spreadsheet) and staple the graph(s) to the report.

    a. If the data set is reasonably small and you are plotting the results of calculations, put the graph on the same page as the data. The size of the graph should be adjusted so the width of the graph essentially fills the width of the paper. If the data set is large and you are plotting the data itself, the graph should be on a separate sheet. The data should not be attached to the report.

    b. All graphs will be a scatter (x-y) plot with data points. When a regression line is required, lay it over the data points. If a regression line is not required, the "smooth curve" with the data points is usually appropriate. Curve fitting is usually not needed.

    c. On graphs requiring a regression line, include the equation of the line and the correlation coefficient (R^2).

    d. Turn the "legend" off for a single series plot.

    e. There should be NO background shading on the graphs.

    f. Make sure the graph has both horizontal and vertical grid lines with major and minor ticks. Appropriately scaled, the data points "fill" the entire graph.

    g. All graphs contain an appropriate title [which tells something about what you are finding out from the graph] and each axis is identified with labels and correct units. A title simply stating the labels on each axis (i.e. distance vs. time) is NEVER acceptable.

    h. Use Greek symbols, superscripts, and subscripts appropriately in titles and labels.

i. **Attach all appropriate graphs to your lab report**

9. For all experiments you will write a final section that is a Summary. **It should be concise, specific, and direct. It must be written using the rules of Standard English.**

    - There should be a detailed discussion of the results when appropriate. What do the results mean, what is the significance of the results, etc.

    - In a quantitative experiment, you must attempt to analyze the experiment.

        1. What factors might contribute to errors in the results of the experiment.

        2. What is the effect of these factors on the results?

- The summary will be the most difficult for the first few experiments. Therefore, efforts will be made to give guidance and advice before you will be held completely responsible on your grade. Failure to heed advice will eventually result in penalties. Much of the report may be done in consultation with a peer, but the summary must be your own individual work.

10. Your last entry will be your legal signature and the date the report is completed.

11. Reports are due at the beginning of the lab period following the experiment unless otherwise stated. Late reports will be accepted until noon of the following day with a 10% reduction in possible grade. No reports will be accepted after the late deadline unless extenuating circumstances exist. If there is a problem with submitting a report on time, see the instructor before the due date. You MUST do an analysis of the data/observations and have a summary. In other words, a complete lab report is required if you want a grade on that experiment.

12. Each report will be assigned a certain number of points. A grading rubric is provided for each lab and is to be attached as the last page of the report with your name and lecture/lab code.

13. If you use another student's data *without* doing the lab yourself, the maximum grade you can earn on the lab is 50%.

SIMPLE STATISTICS

Comparisons Using Experimental Results

For quantitative labs, you need to consider the precision and accuracy of your results.

As indicated in your text, precision refers to the reproducibility of a measurement or a calculation based on measurements. Precision is normally expressed as a percent of closeness or agreement to an average experimental value. The complement of precision is relative error (RE). The sum of the two is 100%. Relative error can be viewed from two perspectives, (1) how your individual result compares to an average result: $\%RE = \frac{x - \bar{x}}{\bar{x}} \times 100$; or (2) the relative error of an entire group: $\%RE = \frac{s}{\bar{x}} \times 100$. In either case, % Precision = $100 - |\%RE|$

Accuracy refers to the agreement of a particular value to a true or theoretical value. Where RE is in correspondence with precision, we use absolute error (AE) in correspondence with accuracy. For an individual, $\%AE = \frac{x - \mu_0}{\mu_0} \times 100$, while for a group, $\%AE = \frac{\bar{x} - \mu_0}{\mu_0} \times 100$, and then % Accuracy = $100 - |\%AE|$

Definitions of Symbols:

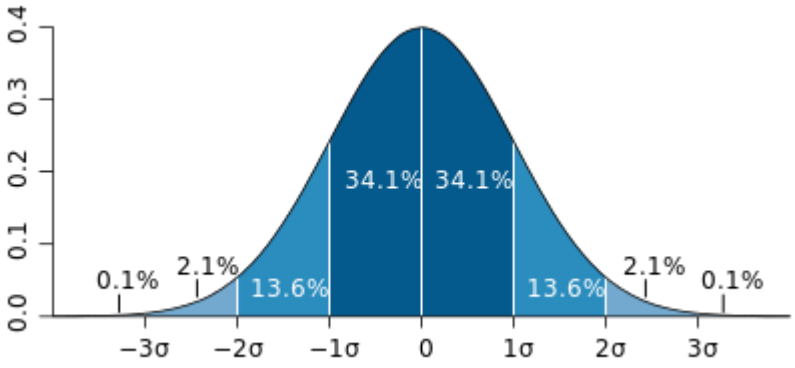
$\bar{x}$ = arithmetic mean $\Rightarrow \bar{x} = \frac{\Sigma x}{n}$ where n = number of values in the experimental set

μ_o = an accepted or theoretical value

s = standard deviation of set of results $\mathbf{s = \sqrt{\Sigma \frac{(x - \bar{x})^2}{n - 1}}}$

In probability theory and statistics, **standard deviation** is a measure of the variability or dispersion of a population, a data set, or a probability distribution. A low standard deviation indicates that the data points tend to be very close to the same value (the mean), while high standard

deviation indicates that the data are spread out over a large range of values.



In addition to expressing the variability of a population, standard deviation is commonly used to measure confidence in statistical conclusions. For example, the margin of error in polling data is determined by calculating the expected standard deviation in the results if the same poll were to be conducted multiple times. (Typically the reported margin of error is about twice the standard deviation, the radius of a 95% confidence interval.) In science, researchers commonly report the standard deviation of experimental data, and only effects that fall far outside the range of standard deviation are considered statistically significant - normal random error or variation in the measurements is in this way distinguished from causal variation.

Outlying Results

When a set of data contains an outlying result that appears to deviate excessively from the mean, the decision must be made to retain or disregard it. The choice of criteria for the rejection of a suspected result has its perils. If we demand overwhelming odds in favor of rejecting a questionable measurement and thereby render this difficult, we run the risk of retaining results that are spurious and that have an inordinate effect on the mean of the data. On the other hand, if we set lenient limits on precision and make easy the rejection of a result, we stand to discard measurements that rightfully belong to the set. It is an unfortunate fact that there is no universal rule that can be invoked to settle this.

There are many statistical tests that can be employed as guides in making this decision. The the **4*d* Rule** will be used.

Scope: Requires four or more results in the trial set.

Method: Calculate the results of each reported trial.

1. Sort the **results** [keeping all data for each trial together] in either ascending or descending order. Calculate the mean and standard deviation.
2. As a first estimate for exclusion, establish a range of acceptable results by adding & subtracting **two** standard deviation units to/from the mean.
3. Calculate a new mean and a new standard deviation excluding those results that fall outside the range determined in Step 2.
4. Multiply the new standard deviation by 4 [this is the 4d].
5. Using ALL the original results, determine the difference between each result and the new mean from Step 3.
6. Compare each difference with the 4d.
7. IF a difference is greater than 4d, it is valid to exclude that trial.
8. IF the difference is not greater than 4d, that trial may not be excluded and Steps 3-8.
9. The 4*d* Rule is to be applied only once to a data set. (This means that once you have a new set from which results have been excluded, you may not use the 4d rule on the new data set. The 4d rule can only be done on the original trial set.)

Lecture Schedule – Semester 1

Lecture Schedule Note: The sections indicated in this column do not correspond to the text book; instead they refer to the curriculum sections	Due Dates/Homework and other Information
Hand-out Syllabus and Polyatomic Ion List – Short discussion of both	All reading should be done ***prior*** to the next class. *3.3 The Mole page 85* *3.4 Molar Mass page 90*
1.1 The Mole and Molar Mass	Homework: page 128 #45, 47, 51, 57, 59, 61, 64, 72 *Read 3.2 Atomic Masses*
1.2 Mass Spectroscopy of Elements	Homework: page 128 #37, 39, 41, 44 *Read pages 43 – 50, 96 - 103*
1.3 Elemental Composition of Pure Substances	BSU classes begin Homework: page 73 #17, 28, 35 and Page 127 – 27, 73a, 77, 83, 89, 93, 94
1.4 Composition of Mixtures	Page 34 #26, 79, 81, 83, 116 *Watch TedEd: How Small is the Atom* *Read pages 314 – 320, 322 – 329*
1.5 Atomic Structure and Electron Configurations	Homework: page 342 #25, 29, 83, 85, 90, 145 *Read Section 9.6 starting on page 441*
1.6 Photoelectron Emission Spectroscopy	Homework: PES Worksheet *Read Section 7.12 starting on page 329 and Section 8.2 starting on page 356*
1.7 Periodic Trends	Homework: page 346 #105, 107, 113, 116, 120, 124 and page 415 #27 *Read Sections 2.6, 2.7, and 2.8 starting on page 55*
1.8 Valence Electrons and Ionic Compounds	Shadow Day Homework: page 73 #18, 23, 31, 71, 75, 76, 84 (skip b, f, and j), 85 (skip e and m) *Read Sections 8.1, 8.2, 8.3 Starting on page 352*
2.1 Types of Chemical Bonds	Homework: page 404 #15, 16, 17,19, 27, 29, 31, 33, 37, 38 *Read Section 8.8 page 373*
Exam over Unit #1 – No Lab	
2.2 Intramolecular Force and Potential Energy	Homework: page 408 #63 and 64 *No reading for Section 2.3*
2.3 Structure of Ionic Solids	No homework for this section – what is in your book is beyond the scope of the curriculum *Read "Metal alloys" starting on page 470* *Watch the video/power point 2.4 Structure of Metals and Alloys* *Do problem #19 on page 499* *Read Section 8.10 starting on page 376*
2.5 Lewis Structures	Homework: page 408 #83, 84, 87, 88 *Read pages: Section 8.13 page 389 and pages 416 – 422*
2.6 Resonance and Formal Charges	Homework: page 409 #90, 94, 101, 106, 107 *Read Section 8.13 page 389 and pages 416 – 422*
2.7 VSEPR and Bond Hybridization	Tonight would be a good night to take care of 3.2 – see 9/20 below
2.7 VSEPR and Bond Hybridization	Homework: page 416 #115, 116, 125 and page 445 #9, 28, 35, 38 Read Section 10.1 starting on page 455
3.1 Intermolecular Forces	*Watch Video/Power Point 3.2 Properties of Solids* *Homework page 499 #12, 18, 28, 82*
3.1 Intermolecular Forces	Homework: page 499 #13, 14, 35, 35, 37, 40

	Read Section 10.6 (starts on page 479 – don't worry about the different types of packing), Section 10.7, and Section 10.8 (only through the definition of vapor pressure) *Begin Reading sections 5.1 page 190, 5.2 page 192, 5.3 page 198, 5.4 page 2.3, 55 page 208* Homework: page 499 #12, 18, 28, 82
3.3 Solids, Liquids, and Gases	*Continue Reading sections 5.1 page 190, 5.2 page 192, 5.3 page 198, 5.4 page 2.3, 55 page 208*
Exam #2 Units 1 and 2	
3.4 The Ideal Gas Law	Homework: Page 234 #23, 45, 47, 54, 59, 61, 63, 66, 82, 85, 89, 90 *Read section 5.6 page 214*
3.5 Kinetic Molecular Theory	Page 234 #29, 32, 101, 105, 106, 107, 108 *Read section 5.8 page 224 (don't worry about using the Van der Waals equation – you need to know why there are deviations from the Ideal Gas Laws)*
3.6 Deviations from the Ideal Gas Law	Page 235 #35, 123 *Read Section 4.1, 4.2, and 4.3 starting on page 139*
3.7 Solutions and Mixtures	Quarter One Ends – Parent Teacher Conferences Page 181 #15, 25, 26, 27, 29, 33, 34, 35, 91 *Read Section 1.10 on page 27*
3.9 Separation of Solutions and Mixtures and 3.10 Solubility	*No reading for the next section* Homework for 3.9 and 3.10 Page 38 #79, 116 Read section 7.1 page 296, 7.2 page 298, and 7.3 page 305
3.11 Spectroscopy and the Electromagnetic Spectrum	Page 341 #22, 39, 40, 42, 45, 47, 49, 52 *Read: A16 Spectral Analysis*
3.13 Beer-Lambert Law *Note: 3.12 The photoelectric Effect was Covered earlier in the semester*	*Watch video/Power Point 3.8 Representations of Solutions* Homework: Page 181 #24, 31, 36, 90, 92
4.1 Introduction for Reactions and 4.4 Physical and Chemicals Changes	No homework for this section *Read Sections* 3.8 page 103, Section 3.9 page 105, Section 4.6 page 159
Exam #3 Over Units 1,2, and 3	
4.2 Net Ionic Equations and 4.3 Representations of Reactions	Page 127 #30, 31, 32, 95, 96, 100, 101, 102 page 182 #47, 49, 51, 52 *Read: Sections 3.10 and 3.11 starting on page 108*
4.5 Stoichiometry	Page 132 #105 – 112 *Read Section 5.4 starting on page 203*
4.5 Stoichiometry	Page 237 #65, 67, 70, 71, 73, 74, 76 *Read Section 4.5 and 4.7 starting on page 153*
4.5 Precipitation Stoichiometry	Page 183 #55, 57, 59, 61, 62, 63, 64 *Read Section 4.8 page 163 and Section 14.1 page 653*
4.7 Types of Chemical Reactions and 4.8 Introduction to Acid-Base Reactions	Page 183 #65, 68, 71, 72, 73 and page 702 #37 and 38
4.6 Introduction to Titration	Page 183 #65, 68, 74 – 78 *Read Section 4.9 page 170 and Section 18.1 page 833*
4.9 Redox Reactions	Page 877 #16, 29, 30 – 32
Practice with Stoichiometry	
More Practice with Stoichiometry	*Required Reading: 7.10 History of the Periodic Table*

	Read Section 12.1 page 553
Exam #4	
5.1 Reaction Rates	Page 593 #23, 25, 26 *Read Section 12.2 page 557 and 12.3 page 559*
5.2 Introduction to Rate Law	
5.2 Introduction to Rate Law	Page 594 #29, 31, 33, 36 *Read Section 12.4 page 563*
5.3 Concentration Changes over time	Page 594 #37, 39, 41, 42, 45, 47, 49, 50, 53, 55, 57, 58, 83 *Read Section 12.5 page 574 and 12.6 page 577*
5.3 Concentration Changes over time	
5.5 Collision Model and 5.6 Reaction Energy Profile and 5.11 Multistep Reaction Profile	Page 592 #1010 – 12, 18, 19, 63, 64, 73, 74
5.7 Introduction to Reaction Mechanisms and 5.8 Reaction Mechanism and Rate Law	Page 597 #59, 60, 61, 62 *Read Section 12.7 page 583*
5.11 Catalysis	Page 593 #20 – 22, 75(a,b), 79
Review	**Final**
Exam #5	
Review	
Review	
Review	
Review	
Final Exams	