



Chemistry

Mrs. Fehrin Brindley

Course Description:

Welcome to Chemistry! This is a college-preparatory chemistry education, employing the “atoms first” approach to chemistry, provides foundational information about atoms and molecules that allows for a logical and sequential presentation of topics. Topics of study include classification of matter, atomic structure, spectroscopy, chemical bonding, molecular geometry, physical change, chemical change, stoichiometry, solutions, ideal gases, acid/base chemistry, reduction/oxidation reactions, thermochemistry, thermodynamics, kinetics, and chemical equilibrium. Students are taught to think as chemists to analyze changes in matter using the concepts of chemistry and their mathematical applications.

Classroom Live Meetings:

Section 1: TR @ 9:00 AM - 9:50AM CT

Section 3: MW @ 1:00 PM - 1:50PM CT

Teacher Talk: Thursday @ 10am CST

Course Materials:

- *Discovering Design with Chemistry by Dr. Jay L. Wile Textbook*
- *Discovering Design with Chemistry Lab Kit*
- *Denatured Alcohol (available at hardware stores)*
- *Additional household items for labs (see lab supply list)*
- *Scientific calculator*

Grading:

Notes 10%

Comprehension Check 10%

Chapter Homework 10%

Chapter Review 10%

Lab Reports 15%
Chapter Tests 30%
Exams 15%

The FPE grading scale is:

97-100 A+	87-89 B+	77-79 C+	67-69 D+
93-96 A	83-86 B	73-76 C	65-66 D
90-92 A-	80-82 B-	70-72 C-	0-64 F

Classroom Expectations:

- Read the lessons to be covered prior to coming to Classroom Live. We only meet 2 days a week and cannot cover everything in class, so students are expected to read and learn the material independently. Any questions can always be addressed in class.
- Take good notes in class - clear, neat, etc. Charts and tables are a great way to keep track of facts. Examples of math problems from the class, your book, or homework are a good idea to reference later. You will be required to **turn in** notes from each chapter. These should include every example I work on the board in class.
- The Comprehension Check questions should be completed in cursive (unless it's a math question) as you get to them in the reading. I suggest complete sentences to help you study for the test. On math questions, you **MUST** show your work on the file submissions. The answers to these questions are at the back of the chapter, but you **MUST** answer them in your own words! Copying the answers from the book is plagiarism, which we take very seriously at FPA. You will receive a zero and be reported to the administration.

Participation:

- You have reached the rhetorical stage of your educational development and are expected to participate in class, share thoughts and ideas, and help your fellow classmates.
- Please be **RESPECTFUL** of other classmates during our time in the classroom. (We love to have fun but we also need to stay on task). We will lose some fun privileges if people ruin them for the class.
- If you are most often participating in class, with the polls, answering questions, or participating in on topic chats, you will likely receive a few bonus points each quarter.

Assignments:

- The **DUE** date is not the day you should **DO** the assignment!! Complete your assignments as we go through each module and manage your time wisely as assignments are due together at the end of the module.

- Weekly assignment sheets are posted 2 weeks in advance. They contain the current week and next week assignments.
- No extensions will be given for unexcused late submissions, a test that has been closed for submission, or incorrect/blank submissions.
- The lowest assignment grade and lowest lab report grade will be dropped each semester to allow some grace for situations that are not excused. No exam grades will be dropped since notes are permitted.
- Written homework will NOT be accepted as a message or attachment in Canvas and must be submitted as a merged pdf.

www.pdfmerge.com

www.zamzar.com

www.foxyutils.com

Experiments/Lab Reports:

- I have a specific format I want you to use for the lab reports, which we will go over in class. We will not do every experiment in the book, since there are over 45 experiments, but we will do several. I will require a formal lab report for one experiment per chapter. It will be assigned, and not the experiment of your choice. If I require a second experiment in the chapter, it will be a photo only lab.
- Check weekly assignment sheet for upcoming experiments and plan ahead to make sure you have needed materials and supplies.
- You can find most of what you need for your lab experiments around the house and a list of supplies is included for any purchases.
- Write lab report in CURSIVE on separate piece of paper.
- Follow the instructions/template that will be posted for every experiment.
- Include a PHOTO of your experiment in progress.

Study Guides:

- Study guides are found at the end of each module and answers may be handwritten or typed.
- List all definitions with word you are defining first.
- Number each question as the book does.
- Write all answers with complete information without pronouns.
 - Incomplete answers
 - acid
 - It is an acid.
 - Complete answers
 - Vinegar- Acid
 - Vinegar is an acid.

Reviews:

- The chapter review questions are due at the end of the chapter, and will include some comprehensive review, to keep you ready for the semester exam. This will not be the chapter review from the textbook. As we progress, a randomized

question from each of the previous chapters will be included, just to help you remember what you have learned. These will be due the Wednesday before the chapter test.

- The chapter homework will be math review. As we progress, a randomized question from each of the previous chapters will be included, just to help you remember what you have learned. These will be due the Thursday before the chapter test.

Module Tests:

- You may use your notes and study guide for module exams but are not permitted to use your textbook or other online aids.
- You need to study the material and only use notes or study guide when necessary for clarification, difficult vocabulary, etc.
- The test is timed so be sure to set aside time before starting it.
- Should you need to take the exam on a different day than assigned, please request to take it early at least 24 hours in advance of the day you plan on taking it. I do not always get to my messages the day they are received.

Extra Credit:

- ☑ There will be some experiments that I think will be enjoyable or aid in your learning, but do not want to add too much to your plate if it is full by requiring four experiments in the same chapter. When those situations happen, you will be given the opportunity to complete additional experiments for some extra credit. Those will require a photo and a conclusion paragraph for full credit but will not hurt your grade if you elect not to do them. If you can squeeze them in, I encourage you do to so. Every semester, I have students who want to pull up their grade right before the exam and beg for extra credit but have failed to take advantage of the extra credit offered all year long. This is insurance for the chapter(s) where you find yourself struggling. Don't wait until the end of the semester and as for extra credit. The answer will be no. The lab kit is required for this class. If you did not purchase it, please do so now. There are required experiments that need materials that are not household items and are not readily available at a supermarket or hardware store.

Should you have questions that are not covered in this syllabus, please contact Mrs. Brindley directly.

I'm looking forward to a great year of discovery with a mature and fun group!

I, (student name) _____, have read the class expectations for Biology and agree to do my own work, not using given solutions in any format.

Student Signature _____

I, (parent name) _____, have read the class expectations for Biology and I agree to keep any solutions in any format away from student access.

Parent Signature _____

Chemistry Supply List

- Supplies are listed by chapter
- When salt is listed, you may use any salt you wish: table salt: iodized or uniodized, mineral salt, kosher salt, or sea salt. The only salt that won't always work is rock salt (like for ice cream makers)
- The experiments are easily modified to use a stovetop instead of the alcohol burner, but you will need denatured alcohol whether you use the alcohol burner or not. If you live outside the US, and denatured alcohol is not in the paint dept of your local hardware store, look for methanol, cooking fuel, marine alcohol, or bio flame instead.
- **Bold items** are household items not included in the lab kit that might require an additional purchase.

• Items marked with an asterisk (*) are for extra credit labs, so they are not required, but HIGHLY recommended.

Chapter 1

- A 50-mL graduated cylinder
- A mass scale
- A medicine dropper
- A 250-mL beaker
- Water
- **Cooking oil (any kind as long as it is liquid)**
- **Table salt in a saltshaker**
- Safety goggles

Chapter 2

- A 100-mL beaker
- A 250-mL beaker
- An alcohol burner with stand
- **Lighter or match (to light alcohol burner)**
- **Denatured alcohol (for the alcohol burner)**
- A funnel
- Filter Paper
- **A 1/8 tsp measure (or 1/4, just only fill it half-way)**
- **Salt**
- **Dried leafy herb (textbook says Chervil, but parsley, oregano, basil, cilantro, etc. works)**
- Water
- A watch glass
- A mass scale
- **Milk (Almond milk works if you are dairy free)**
- **Vinegar (doesn't matter what kind)**
- **Hydrogen peroxide***
- **Active dry yeast***
- **1/4 tsp measure***
- **Matches or lighter***
- **Toothpick(s)***
- A sink*

- Safety goggles

Chapter 3

- **A small ceramic (or other hard material) plate, like a saucer for a coffee cup (It cannot be paper or plastic, as you will burn a small volume of liquid on it.)**
- A 100-mL beaker
- A medicine dropper
- **Denatured alcohol**
- Copper (II) Sulfate (AKA Cupric Sulfate)
- Strontium Chloride
- **Table Salt**
- **1/4 tsp measure**
- A sink in a room that can be dimmed
- **A dish towel**
- **Something to ignite the alcohol (long lighter is safest)**
- Safety goggles

Chapter 4

- **A clear plastic cup (It is important that you can clearly see into the cup)**
- **Two metal thumbtacks**
- **Distilled water (not spring or drinking water)**
- **Table salt**
- **Sugar**
- **1 Tbs measure**
- **A 9-volt battery**
- Safety goggles

Chapter 5

- A funnel
- **A balloon**
- A 250-mL beaker
- A 100-mL beaker
- **Dish soap**

- Water
- **2 different cooking oils (any kind as long as they're liquid)**
- A sink
- 2 spoons
- Someone to help you
- (Optional: magnifying glass)
- Safety goggles

Chapter 6

- A 100-mL beaker(*)
- A 250-mL beaker(*)
- A thermometer (Range must include 0°C – 30°C)
- **Denatured alcohol(*)**
- A sheet of paper
- Water(*)
- Two medicine droppers*
- Two 50-mL graduated cylinders*
- **Liquid blue food coloring (not gel)***
- **Three tall glasses, roughly the same size***
- Stove*
- A spoon*
- Ice*
- A mass scale*
- Copper (II) sulfate (AKA Cupric sulfate)
- **A galvanized nail (silvery color)**
- Two test tubes
- **Some thread**
- **A ¼ teaspoon measure**
- **A small amount of steel wool (without soap)***
- **A 9-volt battery***
- **A metal pie pan***
- A stove*
- Safety goggles

Chapter 7

- A mass scale
- A graduated cylinder

- **Three 1/2 – liter bottles (disposable water bottles)**
- **Baking soda**
- **A teaspoon**
- **Vinegar**
- **A turkey baster (or funnel)**
- **A piece of waxed paper**
- **Three round balloons**
- Safety goggles

Chapter 8

- A mass scale
- A 250-mL beaker
- A medicine dropper
- A graduated cylinder
- A watch glass
- **Baking soda**
- **A teaspoon**
- **Vinegar**
- Safety goggles

Chapter 9

- Strontium chloride
- Sodium hydroxide
- Graduated cylinder
- A 100-mL beaker
- A 250-mL beaker
- A mass scale
- Water
- Safety goggles

Chapter 10

- **A small jar, like a baby food jar (you must be able to see inside)**
- A funnel
- **Some play dough (or modeling clay)**
- **A small balloon**
- A mirror
- **A small glass, like a juice glass (you must be able to see inside)***
- **A small plate or saucer that will cover the glass***

- A pot for boiling water*
- A stove*
- **A balloon***
- A freezer*
- **A towel or paper towels***
- **Tape (Masking tape or painters tape is better than scotch tape)***
- Safety goggles

Chapter 11

- Red and blue litmus paper
- Ten household items to test the acidity of (both food/drink and household cleaners)
- Suggestions: (Use things you have at home! You do not need to buy things for this.)
 - Bar of soap (doesn't have to be new)
 - Liquid hand (or dish) soap
 - OJ or lemon juice
 - An apple
 - Soda/cola
 - Bleach
 - Glass cleaner
 - Tub and tile cleaner
 - Laundry detergent
 - Yogurt
 - Milk
 - Baking soda
- **Distilled water**
- Tap water
- A sink
- Small glass, like a juice glass
- A knife
- A 100-mL beaker*
- A 250-mL beaker*
- 4 test tubes*
- A medicine dropper*
- An alcohol burner*
- Sodium hydroxide*
- **Red/Purple cabbage***

- **White vinegar***
- **Distilled water***
- Safety goggles

Chapter 12

- Copper (II) Sulfate (AKA Cupric Sulfate)
- A 100-mL beaker
- **Aluminum foil**
- **Three Styrofoam or paper cups**
- **Scissors**
- Water
- **Table salt**
- **Vinegar**
- **A paper towel**
- **A spoon**
- **A shiny penny (or any copper coin)**
- Safety goggles

Chapter 13

- A mass scale
- A thermometer
- A 250-mL beaker
- An alcohol burner
- **Two Styrofoam cups**
- **A metal object, such as a washer or nut (mass should be 10-15 grams)**
- **Carboard**
- **Kitchen tongs**
- **Scissors**
- **Vinegar**
- **Baking soda**
- **A ¼-cup measuring cup**
- **A teaspoon measure**
- A sink
- Safety goggles

Chapter 14

- Sodium hydroxide
- A mass scale
- The calorimeter from Chapter 13
- **Waxed paper**
- **A knife**

- **Vinegar**
- Safety goggles

Chapter 15

- Two test tubes
- An alcohol burner
- A 100-mL beaker
- A 250-mL beaker
- A graduated cylinder
- **Vinegar**
- **Two antacid tablets**
- **A knife**
- **A spoon**
- **Aluminum foil**
- Safety goggles

Chapter 16

- **A Styrofoam or paper cup***
- **A pen or sharpened pencil***
- **A knife***

- A sink with a faucet*
- A 100-mL beaker
- Two medicine droppers(*)
- Copper (II) sulfate (AKA cupric sulfate)
- **Ammonia(*)**
- **White vinegar(*)**
- Water
- **Two small glasses, like juice glasses(*)**
- A 250-mL beaker*
- Alcohol burner*
- Stirring rod*
- Two test tubes(*)
- **Red/Purple cabbage***
- **Two Styrofoam cups***
- Water*
- **Ice***
- **A pot for boiling***
- A stove*
- Safety goggles