



**DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY**  
**CHEMISTRY 1020, WINTER 2021**  
**GENERAL CHEMISTRY II**  
**Tues and Thurs: 8:00 – 9:50 am**

Instructor: Dr. Brian Majestic  
Email: [brian.majestic@du.edu](mailto:brian.majestic@du.edu)  
Lectures: Synchronous Zoom links on Canvas site (will also be recorded)  
Telephone: (office) (303) 871-2986  
(home) (480) 204-9515 (please only call until 8:00pm!)  
Office Hours: Tuesday, Wednesday 10:00 am – 11:30 pm  
Dr. M's Personal Zoom Room: [udenver.zoom.us/my/brianmajestic](https://udenver.zoom.us/my/brianmajestic)

HW Website (Connect):  
<https://connect.mheducation.com/class/b-majestic-winter-2021-genchem-2>

Chemistry 1020 is the second quarter in the General Chemistry series. With Chemistry 1010, this course will provide a broad basis for the fundamental knowledge needed to succeed in higher-level chemistry courses (organic chemistry, analytical chemistry, environmental chemistry, and physical chemistry) as well as a solid foundation for many other disciplines. Chemistry 1010 is a pre-requisite for this course, and it is assumed that you have taken this course (or equivalent) prior to taking Chemistry 1020. If your situation is slightly different, you may have to put in a little more work at the beginning of the course until you have the necessary background.

The lectures will be somewhat general and it will be up to YOU to fill in the gaps to truly understand the details. BOTTOM LINE: Pace yourself and continuously work from beginning to end. Even if you think a topic is easy, I recommend that you put in extra time to make sure you understand the details that may not be presented in lecture. Students who have learned to work at a steady pace have been shown to perform better (and not be as stressed at the end!). Generally speaking, students are expected to put in 2-3 hrs outside of class per credit (this is why 12 hrs is considered a “full load”). CHEM

1020 is a 3-hr course, so the class is designed such that ~ 6-9 hrs of your time outside of class is devoted to this course!

### **Grading:**

To help assess the knowledge you have gained from Chemistry 1020, you will have the opportunity to be evaluated based on your performance in several areas:

Homework	25 %
Quizzes:	60 %
Final Exam:	15 %
<b>Total:</b>	<b>100 %</b>

**Homework:** The homework will be primarily problems from your textbook, and from the online system which comes with your textbook (Connect). Please make sure you know how to work this system **before** the first homework set is due. It is best to go through Canvas, but you could also directly use this link: <https://connect.mheducation.com/class/b-majestic-winter-2021-genchem-2>

Homework will be given out every Tuesday and will be due at class-time (8:00am) the following Tuesday. The problems are specifically chosen so that, if you understand the homework problems, then you will do well on the quizzes, which constitute a significant portion of your grade. So, if you do not feel that you adequately understand a problem, then please seek help.

**Quizzes:** Short quizzes will be given during recitation section every Thursday. Quizzes will focus on the material covered in lecture from the previous Thursday through the current Tuesday. **There are no make-up quizzes and your lowest quiz score will not be included in your final grade.**

**Final Exam:** The Final Exam will be put online in lieu of our last class period. The Exam will be available for 48 hrs, but you must complete it in one 2-hr session. The Final is cumulative throughout the quarter.

**Final Grades:** You are not competing against each other and there is no curve. In other words – if everyone exceeds the required threshold, then everyone can earn an “A” in this

course. The amount of points that you earn will determine your grade. The letter grade associated with your points is detailed below.

A	≥ 93 %	C	≥ 69 %
A-	≥ 90 %	C-	≥ 65 %
B+	≥ 87 %	D+	≥ 62 %
B	≥ 83 %	D	≥ 58 %
B-	≥ 80 %	D-	≥ 54 %
C+	≥ 74 %	F	≤ 54 %

### **Resources:**

**Textbook:** Chemistry: The Molecular Nature of Matter and Change, 9<sup>th</sup> Ed. Silberberg - Amateis. A hardcopy or e-copy is available at the DU Bookstore.

**Me:** Email me anytime with questions about the course or the material. If my scheduled office hours do not fit your schedule, then I can easily make myself available. My email address is [brian.majestic@du.edu](mailto:brian.majestic@du.edu).

**Recitation Section:** These sessions will take place during the last 25-30 minutes of each lecture period. Here, you will either take a quiz or we will review material. The lectures will often be general and some of the details will be filled in during the recitation section. Recitation Section is best spent if you are somewhat prepared. I will provide discussion topics, but it is in your best interest to come prepared with questions to guide the discussion. This will help you get a lot more out of the session.

**Lectures and Powerpoint Slides:** Most lectures will be a Powerpoint presentation. For those lectures, the slides will be available on Canvas after the lecture, along with the recorded video associated with those slides.

**Each Other:** You are more than welcome to collaborate with each other in homework groups. However, each assignment **must be your own work**. Please review the **DU Honor Code** as you will be strictly held to this. It is also encouraged that you form study groups. As in the “real-world,” Chemistry 1020 does not need to be an individual experience. Most of the time, very little gets done without the help of others and teamwork is a great skill to learn. “If I have seen further than others, it is because I have stood on the shoulders of giants.” - Isaac Newton.

**Science and Engineering Center:** Need extra help? The Science and Engineering Learning Center is a collaborative space staffed by undergraduate and graduate learning assistants (LAs) trained to assist students with some first and second year biology, chemistry, physics, computer science and engineering courses. We offer support for both lecture and laboratory courses for chemistry, physics, and engineering courses and lecture only for computer science and biology. Our goal is to help students grow as problem solvers by assisting with homework sets, lab reports, and preparing for exams. This center is open to all DU students. All services are free. Typically, the SEC is located in the north-west corner of the first floor of the Anderson Academic Commons (west of the writing center). However, due to COVID-19, the SEC will be operated through Zoom. See <http://portfolio.du.edu/sec> for a complete schedule.

**Academic Integrity:** “All members of the University of Denver community are expected to uphold the values of Integrity, Respect, and Responsibility. These values embody the standards of conduct for students, faculty, staff, and administrators as members of the University community. Our institutional values are defined as:

*Integrity:* acting in an honest and ethical manner;

*Respect:* honoring differences in people, ideas, experiences, and opinions;

*Responsibility:* accepting ownership for one's own behavior and conduct.”

You will notice that, in the lectures, I credit any sources which provide images, content, or text. In CHEM 1020, we take cases of academic dishonesty very seriously. Note that academic dishonesty is not limited to plagiarism or copying another student's work. It also includes behaviors such as giving false reasons for missing a lab or exam or hiding the fact that other students are knowingly practicing academic dishonesty. The full Honor Code regarding academic dishonesty can be found at <https://www.du.edu/studentlife/studentconduct/honorcode.html>.

Additionally, DU has created a code of conduct for online class. Please review this document here:

<https://www.du.edu/studentlife/studentconduct/>

**Calculators:**

For CHEM 1020, you will need a scientific calculator capable of exponents and logarithms. Any electronics with memory (graphing calculators, phones, tablets, PDAs, etc...) will NOT be allowed during quizzes and exams.

**Lecture and Testing Accommodations:** I will make every effort to accommodate students diagnosed with a learning disability. I will do this in complete confidence. I do, however, request that any student requiring these accommodations inform me the first week of class. For further information, please see the University Disability Services' website: <http://www.du.edu/disability/dsp/index.html>.

Lecture Number	Topic	Textbook Reading
1	Review Enthalpy, $\Delta H$	6.4, 6.6
1,2	Entropy, $\Delta S$ , and the 2 <sup>nd</sup> Law (Intro)	20.1 – 20.2
2	$\Delta S$ and the 2 <sup>nd</sup> law mathematically	20.2 – 20.3
3	2 <sup>nd</sup> Law and Gibb's Free Energy, $\Delta G$	20.3
3,4	$\Delta G$ and Temperature	20.4
4	Equilibrium Constant, K and expressions	17.1
5	Equilibrium Expressions – manipulations and Q	17.2 – 17.4
5,6	Equilibrium and Gibbs Free Energy	20.4
6	Equilibrium – K, Q and $\Delta G$	20.4
7	Equilibrium – Disturbing Equilibrium <b>(END EXAM I)</b>	17.6
7,8	Equilibrium – Solving Equilibrium Problems, Quantitative	17.5
8	Equilibrium – Solving Equilibrium Problems	17.5
9	Equilibrium – Solubility Product, $K_{sp}$	19.3
9,10	Equilibrium – $K_{sp}$ / $K_w$ , pH	19.3, 18.1
10	Acid-base – $K_a$ , $K_b$ , Brønsted Acids, Conjugate Acids/Bases	18.2 – 18.3

11	Acid-base – Quantitative problems	18.4
11,12	Acid-base – Weak Acids/Base strength and Polyprotics	18.6, 19.1
12	Acid-base - Buffers	19.1
13	Acid-base – Buffers / Titrations	19.1 – 19.2
13,14	Acid-base – Titrations ( <b>END EXAM II</b> )	19.2
14	Kinetics – Reaction Rate	16.1 – 16.2
15	Kinetics – Rate Law	16.3
15,16	Kinetics – Rate Law / Integrated Rate Law	16.3 – 16.4
16	Kinetics – (Integrated) Rate Law	16.4
17	Kinetics – Mechanisms	16.6
17,18	Kinetics – Activation Energy / Temperature	16.5
18	Kinetics – Activation Energy / Catalysis ( <b>END EXAM III</b> )	16.7

**Note that this scheduled is tentative and may be revised based on our lecture pace!**

### **Important Dates:**

- January 11: Classes begin
- January 17: Last day to drop/delete a class (with nothing on your transcript)
- Jan 18: MLK Jr. Day – no classes
- February 21: Last day to drop a class without instructor approval
- March 1: Last day to drop a class - final
- March 19: Last day of classes