

CHEMISTRY 112
Spring Semester 2021

Instructor: Dr. Daniel Stelck

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Lecture: 9:30 AM – 10:20 AM: M, W, F in Janssen 104

Office: Renfrew Hall 305 Phone: 885-2146

Office Hours: 1:30 - 2:20: M, W, F (online link: <https://uidaho.zoom.us/j/85110879344>)

Textbook: *Interactive General Chemistry*, Jessica White, W.H Freeman and Company

Home Page: <https://danstelck.weebly.com/chemistry-112.html>

Electronic devices: All cell phones and personal music players must **be turned off and put away** during class and on exams.

Calculator: An inexpensive, non-text entry/non-graphing scientific calculator is required. You may need the calculator during class, laboratory, and on exams. It should have capabilities for square roots, logarithms, exponentiation (antilogarithms), and exponential (scientific) notation operations.

Chemistry 112 (3 credits) is the second semester course in a two-semester sequence. The first semester course is Chemistry 111 (3 credits). The Chemistry 111/112 sequence is designed to serve as a prerequisite for more advanced courses in chemistry and many other science fields.

GENERAL COURSE INFORMATION

WEB SITE

<https://danstelck.weebly.com/chemistry-112.html>

A key component of this course is the course web site. Familiarize yourself with this site as soon as possible. Many of the course materials will be distributed **only** via the course web site.

LECTURES

During lectures, we will discuss principles, outline goals, and present examples of the lecture material. You should read the textbook prior to lecture and take your own notes during lecture. After each lecture you should re-read and study the appropriate pages in the textbook. Be sure that you understand the textbook problems and then do the problems assigned online at the end of each chapter.

This course will put heavy emphasis on your understanding of the material. In order to succeed with this course it is essential that you attend class; either physically or online, keep up on the course material, read the book and work the homework problems.

HOMEWORK

There will be assigned online homework problems for each chapter. You will need to register on Macmillan Learning Achieve to gain access to these problems. Here is a link to the instructions on how to register: <https://www.macmillanlearning.com/college/us/contact-us/first-day-of-class>. Click on the Student Store tab at the top. Search “Achieve” and choose Interactive General Chemistry. At this point, you can choose the 1 term. If you used Achieve last semester by choosing the 2 term option, you should already have an account. Click on the “Find your course” button and the course ID is **uz3vam**.

Some of these homework problems will be graded and others ungraded. All problems assigned will be helpful in mastering the material. There will be a total of 200 points for all graded homework. **All assigned online homework problems must be completed by the assigned time. No extensions will be given.**

EXAMS

There will be three online exams lasting 60 minutes each and a two-hour online comprehensive final exam. Check the following page for the examination dates. All regular exams will be during the normal lecture time.

In fairness to everyone in the class, make-up exams are only given in cases of serious evening conflicts such as semester long regular class meetings, university excused athletic events, or university excused field trips. **Arrangements must be made, with me, in advance for a make-up exam.** Make-up exams will be given prior to the scheduled exam and maybe in person.

Not all of the material in each chapter may be covered during lecture however, you will be responsible for all the material in the chapters. You are also responsible for material that is covered in lecture but is not in the textbook. A tentative, day-by-day, outline for the course is located on the course web site. Examinations will include a significant number of problems. Examination problems will not be identical to lecture, textbook, or online quiz questions that you do, but they will cover the same topics. If you *understand* how to solve these problems, you should be able to figure out how to approach the problems you encounter on examinations.

GRADING

Your grade in this course will be determined by your performance on the three exams, the final exam and the online homework.

NO EXTRA CREDIT POINTS ARE AVAILABLE IN THIS COURSE.

The point breakdown and exam schedule is as follows.

Exam #1	Monday, February 8 th : 9:30 – 10:30 AM	100 points
Exam #2	Monday, March 22 nd : 9:30 – 10:30 AM	100 points
Exam #3	Monday, April 26 th : 9:30 – 10:30 AM	100 points
Final Exam	Wednesday, May 12 th : 8 – 10 AM	200 points
Homework		200 points
Total		700 points

Your course grade will be based on your final total number of points in the course. Shown below.

<u>Course Points</u>	<u>Grade</u>
630 - 700	A
560 - 629	B
490 - 559	C
420 - 489	D
Below 420	F

We will be covering the following chapters in Chemistry 111. Note that we will be doing the chapters in the same order as they are in the textbook.

- Chapter 12. Liquids and Solids
- Chapter 13. Solutions
- Chapter 14. Chemical Kinetics
- Chapter 15. Chemical Equilibrium
- Chapter 16. Acid-Base Theory
- Chapter 17. Aqueous Equilibria
- Chapter 18. Chemical Thermodynamics
- Chapter 19. Electrochemistry
- Chapter 20. Nuclear Chemistry

After taking this course, a successful student should be able to:

- ❖ define, explain, and communicate using basic terminology as it relates to:
 - states of matter
 - solutions
 - acids and bases
 - equilibria
 - kinetics
 - electrochemistry
 - thermodynamics

- ❖ solve problems and/or perform calculations associated with:
 - heating curves
 - the Clausius-Clapeyron equation
 - unit-cells
 - concentration: molarity, molality, mass percent, and mole fractions
 - colligative properties: vapor pressure lowering, freezing point depression, boiling point elevation and osmotic pressure

 - rate laws and half-life
 - the Arrhenius equation
 - mechanisms
 - pH
 - equilibria: use equilibrium concentrations to determine equilibrium constants and use equilibrium constants to determine equilibrium concentrations for general, acid/base, and solubility equilibria

 - LeChâtelier's principle
 - thermodynamics: enthalpy, entropy, and Gibb's energy
 - voltaic and electrolytic cells

- ❖ Apply knowledge learned in Chemistry 111 to new and more complex Chemistry 112 based problems.

Healthy Vandals Policies

It is a longstanding tradition that Vandals take care of Vandals, and we all do our best to look out for the Vandal Family. These simple precautions go a long way in reducing the impact of coronavirus on our campuses and in our communities. With everyone engaging in these small actions, we can continue to participate in our vibrant campus culture where we are able to learn, live, and grow. Please bookmark the [University of Idaho Covid-19 webpage](#) and visit it often for the most up-to-date information about the U of I's response to Covid-19.

1. **Daily Symptom Monitoring and In-Person Class Attendance.** Evaluate your own health status before attending in-person classes and **refrain from attending class in-person if you are ill, if you are experiencing any of the [known symptoms of coronavirus](#), or if you have tested positive for COVID-19 or have been potentially exposed to someone with COVID-19.**
 - If you display symptoms and/or test positive, you should quarantine following the [CDC's recommendations](#). Do not return to class until you meet the [CDC's requirements](#).
 - If you have been exposed but are asymptomatic, you should stay home for 14 days from last exposure if you remain asymptomatic, adhering to the [CDC's requirements](#).

If you miss an in-person class session, you will be able to attend via Zoom. Documentation (a doctor's note) for medical excuses is not required; instead, email me to make arrangements to submit any missed work and make plans to use Zoom and/or online course materials to stay current with the course schedule.

2. **Face Coverings.** All faculty, staff, students and visitors across all U of I locations must use face coverings whenever in any U of I buildings. **You are required to wear a face covering over your nose and mouth in this classroom at all times.**
 - a. If you have a medical condition that you believe affects your ability to comply with the face covering policy, please contact [the Center for Disability Access and Resources \(CDAR\)](#) to request a reasonable accommodation.
 - b. If you have other reasons you believe make you exempt from wearing face coverings, please contact the Covid-19 Coordinator at covid19questions@uidaho.edu.
 - c. Failure to wear a face covering means you will be required to leave the classroom. If a disruption to the learning experience occurs due to repeated offence and/or egregious behavior, it will be referred to the Dean of Students Office for potential code violation.