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# CHM 11200 Course Packet Summer 2024

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CHM 11200 in Summer 2024 is Online  
(CRN 30011)

<https://purdue.brightspace.com/d2l/home/1013353>

**Instructor:** Dr. Cindy Harwood

**Lecture:** Synchronous online through Zoom: MTWTh 2:10-3:00 pm EDT (will be recorded)  
(<https://purdue-edu.zoom.us/j/97683478774?pwd=K2E4Q3ZQcGJXUFBYU2VSZjN0Q0xqZz09>)

**Email:** [charwood@purdue.edu](mailto:charwood@purdue.edu)

**Office Hours:** T & Th 3:00-4:00 pm EDT online and by appointment online.

**Chemistry 11200** is an online, 3-credit-hour, foundational general chemistry course for agriculture, health and human science, and other majors. The minimum prerequisite for CHM 11200 is credit for CHM 11100. The course is oriented around helping you learn some of the fundamental chemistry concepts, calculations, and laboratory skills you need in your major.

In CHM 11200, General Chemistry II, the following topics will be covered:

- Intermolecular forces (IMF) with an emphasis on understanding IMF at the molecular level and connections between the molecular level and macroscopic properties.
- Acids, bases, and buffers. You will learn and use three different models. We will focus on acid-base reactions, equilibria, and the application of quantitative equilibrium concepts to such reactions. Buffers have important applications in agriculture and in health sciences that will be explored in lecture and laboratory.
- Rates of chemical reactions, known as kinetics, and the quantitative application of zero-order, first-order, and second-order kinetics concepts to understand the factors that control rates of reaction and rates of chemical change.

There is one online section of CHM 11200 taught by Professor Harwood. We have four graduate teaching assistants, Gustavo Agreda ([gagreda@purdue.edu](mailto:gagreda@purdue.edu)), Helen Campbell ([campb524@purdue.edu](mailto:campb524@purdue.edu)), Yuntian Bai ([bai121@purdue.edu](mailto:bai121@purdue.edu)), and Ishmam Mohtashim ([smohtash@purdue.edu](mailto:smohtash@purdue.edu)), will rotate through teaching a weekly online recitation (PSO) section offering an opportunity to reinforce what is discussed in lecture and to discuss laboratory. We strongly encourage you to attend recitation! All labs for this course are online.

The CHM 11200 team—the professor and graduate teaching assistants, administrative assistants, and general chemistry preparations lab—are committed to and focused on helping you learn chemistry. We know that this is a foundational course for your major, and in order to achieve your goals and dreams, you need to do well in the course! Please read on to learn about the required materials, lecture and lab schedule, recommended ways to study, grading, and other course policies and procedures.

Detailed learning objectives are provided for each chapter/topic of the course. Broad course learning outcomes for this course are:

1. *Explain basic chemical concepts including intermolecular forces and their effect on physical properties, chemical kinetics and factors affecting rates of reactions, and acid-base chemistry and pH.*
2. *Apply problem-solving skills to calculate unknown information related to chemical concepts such as kinetics, and acid-base.*
3. *Analyze tabulated data, graphs, raw data from laboratory experiments, observations, and molecular-level models to answer scientific questions and construct evidence-based arguments supporting a scientific claim.*

**Dr. Harwood:** My contact information is located on page 1 of this document. I will hold office hours this semester online. Please feel free to email me with questions. I generally will respond within a few hours. Please email me from your @purdue.edu account so I can tell for certain who is emailing! Please include an informative subject line so I know what the email is about and sign your email so I know your name.

**Course Information:** Lecture Powerpoints, links to homework assignments, reading assignments, announcements, and other course information are available on the course Brightspace page. <https://purdue.brightspace.com/d2l/home/1013353>. I recommend you visit it often!

### Required Materials

**Textbook:** The textbook chosen for you this semester is Chang, Chemistry, 14th edition. I have also chosen the McGraw-Hill **ALEKS** online homework program for our homework platform. When you purchase ALEKS, it includes an electronic copy of the textbook, Chang, Chemistry, 14th edition (ISBN: 9781266823466). You can purchase ALEKS from the University bookstores or directly through McGraw-Hill (it's cheaper directly from McGraw-Hill because the bookstore adds a small markup to the McGraw-Hill price). If you are using an old book (any edition) you will still need to purchase access to the ALEKS program which automatically includes an electronic copy of the text. A link on the course Brightspace page will direct you to the McGraw-Hill site where you can make your purchases. (NOTE: If you were in CHM 11100 or CHM 11200 in Fall 2023 or Spring 2024 and purchased 52-week ALEKS access, you should not need to repurchase ALEKS. Contact Dr. Harwood if you have questions about this.)

**Lab Manual:** We have a digital laboratory manual this semester from Top Hat. You must purchase access to the online lab manual using the link on the Brightspace course page. You will also need to purchase access to BeyondLabz which is an online lab simulation site that we will be using this semester for our labs. That link can also be found in the Brightspace course. All students will need to purchase Summer 2024 lab manual access. (NOTE: If you were in CHM 11100 or CHM 11200 in Fall 2023 or Spring 2024 and purchased BeyondLabz access, you should not need to repurchase BeyondLabz again. Contact Dr. Harwood if you have questions about this.)

### Week #1 Assignments:

- **Sign up for Brightspace notifications for email & announcements**
- Purchase required materials: ALEKS (includes textbook), TopHat, and BeyondLabz.
- Read all the information in this course packet.
- Complete the first ALEKS weekly homework assignment.
- Read the Reading Assignments and Learning Objectives (on Brightspace).

### Weekly Assignments & Due Dates:

- Lecture: Monday, Tuesday, Wednesday, Thursday (online)
- PSO (Recitation): Monday & Wednesday (online)
- Activities & Explorations: DUE on Mondays @ 11:59 pm
- Lab Reports: DUE on Thursdays and Tuesdays @ 11:59 pm
- Homework: DUE on Fridays @ 11:59 pm

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\*\*\*For more information on the topics in this course summary, please see course Brightspace page. \*\*\*

## Overview of CHM 11200 Activities and Policies

\*\*\*For more detailed information, see the course Brightspace page.\*\*\*

### Brightspace

This is the learning management system (LMS) that we use in the course. I will post all the course resources on our Brightspace page and you will need to access this page multiple times each week. The course content is broken up into 4 topics that are explained on the course lecture schedule at the end of this document.

### Reading

See the lecture schedule in the course syllabus for the reading assignments. These are also posted on our Brightspace webpage. *Reading the assigned material prior to listening to the lecture and laboratory materials is recommended.*

### Lecture – Online

Lectures will be presented synchronously online through Zoom. Lectures will be recorded and posted on Brightspace. See lecture schedule in the course packet for details.

### Recitation (PSO)

The teaching assistants conduct two weekly online recitations (PSO) designed to help you understand the upcoming laboratory and to discuss any questions you may have from lecture or the homework. Recitation guides containing relevant conceptual and numerical questions are provided in Brightspace each week. Teaching assistants will facilitate group discussions over these problems. You will have time to ask questions and check your homework and lab answers so be ready to ask your homework and lab questions in recitation.

### Homework (ALEKS)

Each week you will have an online homework assignment in ALEKS. Deadlines for completing the on-line assignments will be listed on the online ALEKS assignment page. Homework will be due on Fridays at 11:59 pm EDT. You will have a maximum of **three** attempts to complete each homework **question** and a maximum of three submission attempts for each assignment before the listed due date. Homework will be scored and recorded on-line and there is no hand grading or regrading of homework. *There is a 1-week grace period for turning in late homework assignments. Any questions answered after the original due date will incur a 20% grade penalty on that assignment.*

### Activities & Explorations

These are activities where you may be asked to consider some data or how molecules interact and then make a claim and support it with your reasoning (claim-evidence-reasoning sheets).

There are 6 activities worth 30 points each (the lowest one will be dropped). The Activities & Explorations will be submitted through Brightspace. Activities and explorations will be due on Mondays at 11:59 pm EDT as noted in Brightspace. Late work will not be accepted unless there are extenuating circumstances (illness, grief absence, University sponsored activity).

### Exams

There will be 3 online, timed exams on Brightspace this semester worth 135 points each. These exams will be held online in lieu of lecture. Exams will open from noon (12:00 pm EDT) until 11:59 pm on the scheduled exam day.

- Tuesday, June 25, Brightspace
- Monday, July 15, Brightspace
- Monday, July 29, Brightspace
- Final Capstone Activity DUE Wednesday, August 1

There is no final exam for this course. A final capstone activity will take the place of the final exam and will be due on August 1 at 11:59 pm EDT on Brightspace.

### **Laboratory (Top Hat & BeyondLabz)**

Laboratory exercises are an integral part of CHM 11200 and we will complete our labs this year using Top Hat Labs as our digital lab manual and BeyondLabz as our main lab simulation platform. Please see the Brightspace course webpage for Top Hat and BeyondLabz access purchase information. Below are due dates and guidelines.

- There will be 1-2 labs per week (most weeks) during the summer semester.
- **There will be NO LABS during Week 1.**
- Labs for the week will be released in Top Hat on Fridays by 8:00 pm EDT.
- Lab reports will be due on Thursdays (1<sup>st</sup> lab of the week) and the following Tuesdays (2<sup>nd</sup> lab of the week) at 11:59 pm EDT
- Your lab report will be completed online through Top Hat. You should make sure to always:
  - Click SAVE or SUBMIT after you type your responses.
  - Label graphs and tables, where appropriate.
  - Use the data you collected for the calculations and analysis.
  - Use correct units of measurement and significant figures.
  - Use chemical terms and concepts correctly.
  - Ensure results and conclusions are consistent with your data and observations.

You will be able to review your graded lab reports online within one week after they are submitted. If you have questions about your grade, speak with the graduate lab instructor assigned to that lab.

### **Determining your Course Grade, Summer 2024**

Each of the assigned course activities for CHM 11200 is worth the number of points listed below. Before course grades are finalized at the end of the semester the following scores will be dropped:

- your lowest homework score
- your lowest lab score
- your lowest Activity and Exploration score

The total number of points for CHM 11200 will be distributed as follows:

Homework .....	150 pts	(Best 6 out of 7 @ 25 pts each)
Labs .....	225 pts	(Best 9 out of 10 @ 25 pts each)
Activities & Explorations .....	150 pts	(Best 5 out of 6 @ 30 pts each)
Final Capstone (in lieu of final exam) .....	70 pts	
Exams .....	405 pts	(3 @ 135 pts each)
<b>Total .....</b>	<b>1,000 pts</b>	

At the end of the summer session, your course grade will be based on the following scale:

- A: 875 pts and above ( $\geq 87.5\%$ )
- B: 775 – 874 pts ( $\geq 77.5\%$ )
- C: 675 – 774 pts ( $\geq 67.5\%$ )
- D: 575 – 674 pts ( $\geq 57.5\%$ )
- F: 0 – 574 pts ( $< 57.5\%$ )

Save copies of all work you turn in until after you have received your course letter grade for CHM 11200. To resolve any discrepancies, your paper(s) will need to be reviewed.

## Course Activities, Policies and Procedures

### Studying Chemistry

Expect to spend at least 8-12 hours per week on chemistry. This time includes reading course materials, listening to lectures, completing homework, activities, exams, and lab assignments.

### Sources of Help

There are several **free** sources of help for CHM 11200 students: (1) professor and (2) TA office hours.

### Changing Sections/Dropping

#### **UNIVERSITY DEADLINES - Summer 2024**

**Fri. June 14:** Last day to cancel (drop) a course in myPurdue, without it appearing on your record.

**Wed. July 24:** Last day to cancel (drop) a course (with a passing or failing grade).

### Adding the Course/Late Registration

Students are not permitted to add CHM 11200 after June 14. Email Dr. Harwood ([charwood@purdue.edu](mailto:charwood@purdue.edu)) if you register after the course begins to see about making up missed assignments.

### Technology Problems

In the event of a major technical problem, course requirements, deadlines, and grading cutoffs are subject to changes that may be necessitated by circumstances beyond the instructor's control. Relevant changes to CHM 11200 will be posted on the course Brightspace site or can be obtained by contacting Dr. Harwood via email. **You are expected to read your @purdue.edu email on a frequent basis.**

## Accessibility and Accommodations:

Purdue University strives to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let me know so that we can discuss options. You are also encouraged to contact the Disability Resource Center at: [drc@purdue.edu](mailto:drc@purdue.edu) or by phone: 765-494-1247.

## Disability Accommodations

If you require accommodations to access course activities or materials, the accommodations must be described and approved by Disability Resource Center, Young Hall Room 830, 302 Wood Street, 765-494-1247, [drc@purdue.edu](mailto:drc@purdue.edu), [www.purdue.edu/drc](http://www.purdue.edu/drc). To implement accommodations you must follow the instructions listed as "*Responsibilities of the Student*" in the letter prepared by the Disability Resource Center. **Within the first week of the semester or within one (1) week of the date of the letter, you are required to electronically share a copy of your letter to Dr. Harwood ([charwood@purdue.edu](mailto:charwood@purdue.edu)).** *Implementation of accommodations may not be possible if insufficient notification is given.*

## Diversity Welcome

We believe every student in this course has something of value to contribute. Please take care to respect the different experiences, beliefs and values expressed by students and staff involved in this course. We support Purdue's commitment to diversity, and welcome individuals of all ages, backgrounds, citizenships, disabilities, education, ethnicities, family statuses, genders, geographical locations, languages, military experience, political views, races, religions, sexual orientations, socioeconomic statuses, and work experiences. See: <http://www.purdue.edu/diversity-inclusion/>

## Nondiscrimination Statement

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange ideas, and enriches campus life. Purdue's nondiscrimination policy can be found at [https://www.purdue.edu/purdue/ea\\_eou\\_statement.php](https://www.purdue.edu/purdue/ea_eou_statement.php).

## **Medically Excused Absence Policy for Students (MEAPS)**

You should contact the Office of the Dean of Students (ODOS) at 765-494-1747 ([odos@purdue.edu](mailto:odos@purdue.edu)) to request that a notice of the leave be sent to instructors if you have experienced hospitalization, emergency department or urgent care visits. ODOS will require documentation. Please follow up with your instructors to make arrangements per this policy.

## **Grief Absence Policy for Students (GAPS)**

If you experience the death of a family member or close friend, notify the Office of the Dean of Students at 765-494-1747 or ([odos@purdue.edu](mailto:odos@purdue.edu)). You will need to complete the Grief Absence Request Form (<https://www.purdue.edu/advocacy/students/absences.html>). I will receive an email from the Dean of Students informing me of your absence. Scores for any missed assignments under a verified GAPS absence can be either made up or pro-rated (assigned a score based on your average and the class average). Contact Dr. Harwood for more information.

## **MAPS Absence Policy for Students (MAPS)**

You should contact the Office of the Dean of Students to request that a notice of the leave be sent to instructors as soon as you are informed of the dates of mandatory military training. You will need to complete the Military Absence Request Form (<https://www.purdue.edu/advocacy/students/absences.html>). Given proper documentation, I will excuse you from class and provide the opportunity to earn equivalent credit and to demonstrate evidence of meeting the learning outcomes for missed assignments or assessments.

## **Absences Due to University Sponsored Activities**

You should email your letter stating the reason for the absence to me as far in advance as possible. We will meet to discuss the absence and how, if possible, the learning outcomes associated with any missed class activities may be addressed.

## **Mental Health and Wellness Statement**

**If you find yourself beginning to feel some stressed, anxious and/or slightly overwhelmed, try [WellTrack](#).** Sign in and find information and tools at your fingertips, available to you at any time.

**If you need support and information about options and resources to help you,** please contact or see the [Office of the Dean of Students](#). Call 765-494-1747. Hours of operation are M-F, 8:00 a.m. - 5:00 p.m.

**If you find yourself struggling to find a healthy balance between academics, social life, stress, etc.,** sign up for free one-on-one virtual or in-person sessions with a [Purdue Wellness Coach at RecWell](#). Student coaches can help you navigate through barriers and challenges toward your goals throughout the semester. Sign up is completely free and can be done on BoilerConnect.

**If you're struggling and need mental health services:** Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, services are available. For help, such individuals should contact [Counseling and Psychological Services \(CAPS\)](#) at 765-494-6995 during and after hours, on weekends and holidays, or by going to the CAPS office on the second floor of the Purdue University Student Health Center (PUSH) during business hours.

## **Basic Needs Security**

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. There is no appointment needed and Student Support Services is available to serve students 8 am-5 pm Monday through Friday. Considering the significant disruptions caused by the current global crisis as it related to COVID-19, students may submit requests for emergency assistance from the [Critical Needs Fund](#).

The campus also has a food pantry open to the entire Purdue community: *The [ACE Campus Food Pantry](#)*

For details about other Purdue University policies, including academic integrity, class attendance and absence reporting, emergency, nondiscrimination, and disability services, see the course Brightspace site.

## Purdue Honors Pledge

We support and affirm the academic integrity of Purdue in accordance with the Purdue Honors Pledge: “As a Boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together – we are Purdue.” <https://www.purdue.edu/provost/teachinglearning/honor-pledge.html>.

## Academic Integrity Statement and Consequences.

Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert University officials to potential breaches of this value by either emailing [integrity@purdue.edu](mailto:integrity@purdue.edu) or by calling 765-494-8778. While information may be submitted anonymously, the more information that is submitted provides the greatest opportunity for the University to investigate the concern.” Please read <http://www.purdue.edu/odos/osrr/academic-integrity/index.html>.

In CHM 11200, academic integrity means “doing your own work” at all times. Discussion of chemical concepts and problem-solving methods is encouraged, but sharing your answers and work on social media for the express purpose of letting other students copy it is not acceptable. Such a use of technology does not help you learn and is considered academic dishonesty.

**Online exams in CHM 11200 are open book and open note, however all collaboration with others (such as Group Me, Zoom, discussion boards, text, in-person, etc.) during an exam is prohibited.**

Using online resources such as Chegg to gain answers to any graded assignment (including homework, labs, exams, activities and explorations, and worksheets) is *not* allowed. Posting any course materials to websites is a violation of copyright laws and is *not* allowed. Instructors can obtain user information from Chegg and other sites when inappropriate course material is posted and investigate it.

Consequences of academic dishonesty include receiving a lower or failing grade for an assignment, being required to repeat the assignment, receiving a lower or failing grade for the course and/or dismissal from the University. Incidents of academic integrity are referred to the Office of the Dean of Students. A student accused of academic dishonesty will be afforded due process as defined by Purdue University procedures.

## CHM 11200 Artificial Intelligence (AI) Usage Policy

Artificial intelligence (AI) and large language learning model (LLM) tools such as ChatGPT, Bard, Claude, etc. can assist in providing explanations and suggestions and are great resources for brainstorming ideas. AI can help you improve your skills and knowledge, but it cannot replace your creativity, critical thinking, or judgment. It is best to use AI as a supplement to your learning, not just to produce answers. AI does not discriminate between fact and fiction. Information provided by AI can be inaccurate or incomplete.

This course has an AI full disclosure policy. If you use AI as part of your work in this class, please explicitly describe how you used it and provide a link to your chat history.

AI tools should not be used for direct answers to graded assignments and you should not submit AI-generated content as your own work. This is a form of academic dishonesty. If your AI use appears to entail plagiarizing, I will talk with you directly about how to use AI in an acceptable way and discuss any possible penalties at that time. If you are uncertain about whether a particular use of AI is acceptable, please ask.

## Course Evaluation

Toward the end of this semester, you will be provided with an opportunity to give feedback on this course and your instructor. Purdue uses an online course evaluation system. You will receive an official email from evaluation administrators with a link to the online evaluation site and will receive a prompt to complete the survey when you login to Brightspace. Your participation is an integral part of this course, and your feedback is vital to improving education at Purdue University. I strongly urge you to participate in the evaluation system because it helps me improve the course!

## Disclaimer

This syllabus is subject to change. You will be notified of any changes as far in advance as possible via an announcement on Brightspace. Monitor your Purdue email daily for updates.

## Lecture, Lab, Activity, Exam Schedule

Topics: Intermolecular Forces (IMFs); Acids & Bases; Buffers & Titrations; Kinetics

### Chemistry 11200

Week	Date	Lecture Topic	Reading (textbook sections)	Required Video Lectures	Laboratory (Top Hat lab manual)
1	10-Jun	Introduction			<b>NO LABS WEEK 1</b> Purchase and get set up with TopHat Lab manual and BeyondLabz
	11-Jun	Intermolecular Forces	11.1-11.2	Properties of Liquids	
	12-Jun	Intermolecular Forces; Liquid Properties	11.2-11.3; 11.8		
	13-Jun	Phase Changes	12.1-12.3; 12.6-12.7	Colloids	
2	17-Jun	Solutions & Solubility; IMF Applications			L1: IMFs Introduction
	18-Jun	Equilibrium; Acids and Bases	14.1-14.2; 15.1		L2: IMFs Applications
	19-Jun	Acids and Bases	15.1-15.2		
	20-Jun	Strong Acids and Bases – pH	15.3		
24-Jun	More on Strong Acids and Bases		Polyprotic Acids		
3	25-Jun	<b>Exam 1 (in lieu of lecture)</b>		Structure & Acid Strength	L4: Identifying Acids & Bases
	26-Jun	Weak Acids and Bases	15.4-15.5		
	27-Jun	Weak Acids and Bases	15.6-15.9		
4	01-Jul	Weak Acids and Bases	15.6-15.9		L5: Describing Acids
	02-Jul	Salt Solutions & pH; Common Ion Effect	15.10; 16.1		
	03-Jul	Buffers	16.2-16.3		
	04-Jul	<b>4<sup>th</sup> OF JULY HOLIDAY</b>			

\*\* Synchronous online session through Zoom during regular class meeting (2:10-3:00 pm). Will be recorded and posted on Brightspace.



## Chemistry 11200

Week	Date	Lecture Topic	Reading (textbook)	Required Video Lectures	Laboratory (Top Hat laboratory manual)
5	08-Jul	Buffers	16.3		L6: Preparation of Buffers
	09-Jul	Titrations	16.4		L7: Acid-Base Titrations
	10-Jul	Titrations	16.4		
	11-Jul	Titrations and Buffers Applications			
6	15-Jul	<b>Exam 2 (in lieu of lecture)</b>			L8: Weak Acid-Strong Base Titrations
	16-Jul	Rate of Change	13.1		L9: Factors Which Influence the Rates of Reactions
	17-Jul	Rate Laws from Data	13.2		
	18-Jul	Rate Laws from Data	13.2		
7	22-Jul	Integrated Rate Equations	13.3		L10: Chemical Kinetics Molecular Investigations
	23-Jul	Applications of Integrated Rate Equations	13.3		
	24-Jul	Kinetic-Molecular Theory	13.4		
	25-Jul	Factors Affecting Rates of Reaction	13.4; 13.6		
8	29-Jul	<b>Exam 3 (in lieu of lecture)</b>			
	30-Jul	<b>Work day for Capstone Assignment</b>			
	01-Aug	<b>Capstone Assignment DUE</b>			
	02-Aug	<b>NO FINAL EXAM IN CHM 11200!!</b>			

\*\* Synchronous online session through Zoom during regular class meeting (2:10-3:00 pm). Will be recorded and posted on Brightspace.