# Chemistry 1141 Syllabus
# General Chemistry I
# Autumn 2022

**Instructor**: Dr. Andy Napper

**Office**: Massie 323

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**Office hours**:

| | | |
|---|---|---|
| T | 9:00 – 9:30 A.M. | |
| W | 3:00 – 5:00 P.M. | |
| R | 3:30 – 5:00 P.M. | |

**Lecture**:

| | | |
|---|---|---|
| TR | 9:30 – 10:50 A.M. | (MAS 020) |

**Lab**:

| | | |
|---|---|---|
| T | 11:00 – 1:50 P.M. | **Section 03** |
| R | 11:00 – 1:50 P.M. | **Section 04** |

**Attendance policy**: Attendance at lectures is strongly recommended. Attendance at laboratories is required. *Two or more unexcused lab absences will result in a grade of F for CHEM1141.*

**Excused absence policy:** In case of illness, accident, family emergency, or university-sponsored activity, you may be excused from labs, quizzes, and/or homework. In case of a missed exam, a make-up exam will be provided.

For university-sponsored activities, an official excused absence slip must be obtained. This must be obtained in advance of the activity and given to the instructor one-week before your absence.

For other absences, suitable documentation (such as a doctor's note, police accident report, etc.) must be provided within one-week of the excused absence. For absences longer than one week, an academic dean or the dean of students may issue you an excused absence which you can present to your instructor.

Unexcused absences will result in a grade of zero for the assignment.

**Required materials**:

*Chemistry*, 14/e (ebook, accessible via BlackBoard)
—Chang and Overby
Note: you can also purchase a loose-leaf copy of the book for around $30 from the bookstore: ISBN: 9781266334474
*Aleks360 (online homework)*
—Bundled with the textbook or a separate access card
*Chemistry 1141 Lab Manual, Fall 2022*
—Andy Napper
A *non-programmable* scientific calculator (TI-30XIIS)
*Safety goggles or visorgogs* (ANSI Z-87 approved)

**Grading**: 4 exams ..... 50 % (Library 204)
Final exam (Comprehensive) ..... 20 % (Massie 020)
Online Homework ..... 10 % (*Cyberspace*)
Laboratory ..... 20 % (Massie 339)

**Final exam**: Thursday December 8th, 8 A.M. (Massie 020)

**Blackboard course-site**: Notes, handouts, and other useful pieces of information will be available at the following URLs:
http://blackboard.shawnee.edu
http://chem1141.ssuchemistry.com

**Online homework:** You should log on to Aleks as possible! Online homework will be assigned on a weekly basis. The homework set may consist of tutorials, homework problems, and review problems. **Each homework set will be made available on Friday by 5 P.M. and will be due the following Tuesday by 9 A.M.**
• You will be able to access online assignments on Blackboard. They are in the "eBook + Homework" tab on the left side of the screen.
• The inclusive-access course-fee provides you with access to the textbook and an account with Aleks360 at a significant cost savings.

**Lecture material**: We will be covering the following chapters in your textbook:

***Chapter 1*** Measurement and the Properties of Matter
***Chapter 2*** Atoms, Ions, and Molecules
***Chapter 3*** Mass Relationships in Chemical Reactions
***EXAM 1 (Thursday, September 22) – up to and including chapter 3.7***
***Chapter 4*** Reactions in Aqueous Solutions
***Chapter 5*** Gases
***EXAM 2 (Thursday, October 20) – chapter 3.8 – 5 inclusive***
***Chapter 6*** Thermochemistry
***Chapter 7*** Quantum Theory and the Electronic Structure of Atoms
***Chapter 8*** Periodic Relationships Among the Elements
***EXAM 3 (Thursday, November 10)***
***Chapter 9*** Compounds and Bonding
***Chapter 10*** Structure and Bonding Theories
***EXAM 4 (Thursday, December 1)***

**Exams 1 – 4:** Exams 1 – 4 will be held in Library 204 (Flohr) from 6 P.M. – 8 P.M. These will be joint exams that all sections of General Chemistry 1 will take together. A make-up exam will be available for students who have a time conflict or an official University excused absence.

**University ADA statement:** Any student who believes s/he may need an academic accommodation based on the impact of a documented disability should first contact a Coordinator in the Office of Accessibility Services, Hatcher Hall, 740-351-3106 to schedule a meeting to identify potential reasonable academic accommodation(s). Students are strongly encouraged to initiate the academic accommodation process in the early part of the semester or as soon as the need is recognized. After meeting with the coordinator, students are encouraged to meet with their instructors during the instructor's office hours to discuss their specific needs related to their disability. The academic accommodation letter will be sent to the instructor and student via secure e-mail prior to the semester start date. Any questions regarding the academic accommodations on the letter should be addressed to the Coordinator of Accessibility Services. If a student does not make a timely request for academic accommodations and/or fails to meet with the Coordinator of Accessibility Services, a reasonable academic accommodation might not be able to be provided.

**General education program:** Chemistry 1141 counts towards the Natural Science component of the General Education Program (GEP) and addresses *Scientific Reasoning*.

**Laboratory information:** Safety goggles or visorgogs are required to be worn for all laboratories. They must meet ANSI Z87 requirements (normally this information is permanently stamped on the goggles). Laboratory coats are recommended, but not required. Full length pants or full-length skirts are required to be worn in lab. Shoes that cover all parts of your feet are also required. If you are improperly dressed for lab, you will be asked to leave and awarded a zero for the lab assignment.

Reports must have your full name clearly written on the front page to receive a grade.

**Order of labs:**

| Week Beginning | Tue | Thu |
|---|---|---|
| August 22 | 1 | 1 |
| August 29 | 2 | 2 |
| September 5 | 3 | 3 |
| September 12 | 4 | 4 |
| September 19 | 5 | 5 |
| September 26 | 6 | 6 |
| October 3 | No-Labs (fall break) | |
| October 10 | 7 | 7 |
| October 17 | 8 | 8 |
| October 24 | 9 | 9 |
| October 31 | 10 | 10 |
| November 7 | 11 | 11 |
| November 14 | 12 | 12 |
| November 21 | No Labs (Thanksgiving break) | |
| November 28 | 13 & 14 | 13 & 14 |

**Laboratories**:

1. Check-in, safety, and conversions
2. Accuracy and precision
3. A forensic analysis of ink
4. Determining the formula of a hydrate
5. A forensic chemistry exercise involving empirical formulas
6. Double-replacement reactions
7. An introduction to titrations
8. Calcium carbonate determination of an eggshell
9. Determining the ideal gas constant, *R*
10. Calorie content of nuts
11. Determining the enthalpy of neutralization
12. Lewis structures
13. Molecular modeling using Hyperchem Lite 2.0
14. Check-out

**Grading scale:**

| % | Grade | % | Grade | % | Grade | % | Grade | % | Grade |
|---|---|---|---|---|---|---|---|---|---|
| >93 | A | 87 – 90 | B+ | 77 – 80 | C+ | 67 – 70 | D+ | <60 | F |
| 90 – 93 | A– | 83 – 87 | B | 73 – 77 | C | 63 – 67 | D | | |
| | | 80 – 83 | B– | 70 – 73 | C– | 60 – 63 | D– | | |

**Note**: To receive a grade of C– or higher, you must *either*
- pass (>59.5 %) at least three of the four semester exams, *or*
- score greater than a 30th percentile on the ACS standardized final

If you fail to meet both requirements, the maximum issued grade will be a D+.

**Grading errors:** If you notice a grade error on BlackBoard for quizzes, exams, etc.—you need to bring it to the instructor's attention in writing within one week of the due date (for an online assignment) or one week from the assignment being handed back (lab/exam assignments).

**Who should take this course?** The typical audience for this course is: science, engineering, pre-pharmacy, pre-medicine, and science education majors. You may also be taking this course if you are interested in chemistry (yay!), are seeking to satisfy the natural sciences general education category, or curious about how things work.

**Is chemistry hard?** Yes. But not impossible. Consider setting aside several hours a week to practice end-of-chapter homework problems, forming a study group, re-reading your Aleks360 assignments, reading the textbook, and quizzing yourself. Reviewing old material every few weeks has been shown to dramatically improve retention of material in college!

**Do I have to attend every lecture?** Not attending lecture tends to correlate with doing poorly in chemistry. Do not get into the habit of missing class if you can possibly avoid it. At mid-term I will be reporting your expected grade and attendance to the Registrar. This information will be provided to your academic advisor(s), as well as student support services.

**What should I do if I need help?** If you need help—don't wait too long before you seek it out! The following is a partial list of options that are available to you:

- Student success center tutoring. Stop by the success center and sign up for a (free) tutor!
- Browse my course website for chapter objectives, old exams, lecture notes, quizzes, etc.
- YouTube. Amazing selection of videos on any topic you can think about. The *Khan Academy* videos are an excellent place to start.
- Office hours. I hold four office hours a week over three days. Stop by if you have any questions about the course!

**How to study for this class**

**Buy a composition notebook to work problems in.**

☐ *Skim* through the textbook section before you come to each class

☐ After each class, but before the next class, go through the Example problems in the chapter. Do the "Practice Exercise" problems after each example. You can click the "Answer" button in the eBook to reveal the solutions.

☐ In a separate notebook, answer the problems at the end of each chapter that go over the relevant sections. You can click the "Answer" button in the eBook to reveal the solutions

**Before the exams:**

☐ One week before each exam, thoroughly read your notes, being sure to work out any problems yourself that we went over. Try covering up my worked answers with a blank piece of paper and then working them yourself.

☐ Re-work the end-of-chapter and in-chapter problems

☐ Print off a practice exam and take it in a timed fashion. Print off the answers and then grade yourself.

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*Hint: 90 % of your studying in general chemistry should consist of working problems!*

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**End-of-chapter problems**

It is strongly suggested that you work the following problems which will serve as a guide for material for exams. The answers are available to you in the eBook for the **even**-numbered questions.

| | |
|---|---|
| ***Chapter 1*** | 6, 10, 20, 34, 46, 52, 56, 64, 82, 108 |
| ***Chapter 2*** | 6, 12, 16, 26, 28, 36, 48, 52, 60, 62, 76, 102 |
| ***Chapter 3*** | 6, 16, 18, 28, 40, 50, 58, 64, 72, 84, 92, 120 |
| ***Chapter 4*** | 10, 22, 44, 60, 66, 76, 84, 92, 98, 122, 144 |
| ***Chapter 5*** | 14, 18, 32, 44, 56, 72, 98, 108, 114, 126 |
| ***Chapter 6*** | 24, 34, 38, 54, 60, 76, 84, 98, 132 |
| ***Chapter 7*** | 4, 8, 30, 40, 50, 58, 72, 76, 88, 98, 114, 130 |
| ***Chapter 8*** | 12, 16, 24, 30, 44, 52, 60, 64 |
| ***Chapter 9*** | 4, 18, 38, 46, 52, 58, 66, 76, 84, 94, 100 |
| ***Chapter 10*** | 4, 10, 16, 26, 36, 42, 44, 62, 76, 86 |

**Disclaimer:** All dates and policies are subject to change as announced in class.