

# General Chemistry B

## CHEM 102–004 Course Syllabus

**Instructor:** Murat Kahveci, Ph.D. | Office: FH 409 | Email: [mkahveci@luc.edu](mailto:mkahveci@luc.edu)

**Institute:** Loyola University Chicago Department of Chemistry & Biochemistry

**Date:** 7/5–8/12 Mo/We/Fr 1:10–4:00 PM. Life Science Building Room 412.

**Version:** 7/5/2022. *Changes to this syllabus may be made when deemed appropriate.*

**Course:** CHEM 102–004, General Chemistry B, 3 Credits: Lecture and discussion.



*Preparing people to lead extraordinary lives.*

*<https://sakai.luc.edu/x/R389qw>*


## Introduction

- Course Details and Policies*
- Course Materials*
- Course Description*
- Course Content and Objectives*
- Class Attendance & Course Coverage*
- Important Deadlines*
- Classroom & Group Work Guidelines*
- Student and Faculty Expectations*
- Pass/Fail Conversion Deadlines and Audit Policy*
- Health, Safety, and Well-Being On-Campus*
- Course Repeat Rule*
- Student Accommodations*
- Academic Integrity*
- Loyola University Absence Policy for Students in Co-Curricular Activities (including ROTC)*
- Accommodations for Religious Reasons*
- Privacy Statement*
- LUC Academic Calendar*
- Course Grading*
- COVID Protocols and Assistance*
- Tentative Schedule of the Course*

## 1.1 Course Details and Policies


### 1.1.1 Office Hours

Mo/We/Fr at 11:30–12:30 PM. Office hours are held in Flanner Hall 409.

 **Note** For all other times, one should make an appointment via *email*, preferably two days in advance.

### 1.1.2 Office Hour Policy

Office Hour (OH) is one of the Resources for Help, available to give students a regular set of times every week to have access to talk to the instructor outside of scheduled classes. For regular OH, just show up! Bring your questions, fully or partially formed, anytime during the times listed. Bring a classmate with you or meet your classmates online to work together, get feedback, and help. All students are encouraged to attend office hours regularly to ask questions or to discuss any issues that arise during the semester. Private conversations can occur by request - just show up!

 **Note** No appointment is needed for regular OHs.

### 1.1.3 Time Zone

This syllabus lists dates/times using Chicago local time (U.S. Central Time Zone).

### 1.1.4 Class Meetings

	Days & Times	Room
CHEM 102–004 Lec/Disc	7/5–8/12 Mo/We/Fr 1:10–4:00 PM	Life Science Building Room 412
	Session 1: 1:10 PM – 2:00 PM	
	Session 2: 2:10 PM – 3:00 PM	
	Session 3: 3:10 AM – 4:00 AM	



**Note** Attendance will be taken in class meetings and will have 5% weight in the overall course grade. Every meeting has 2 points towards attendance category. Missing a class due to an official excuse will have 1 point attendance grade per class meeting, if the instructor is notified before class meetings on these days.

### 1.1.5 Email Policy

I require that our lecture course, CHEM 102–004, is listed in the email subject line. Here is how to do this:

- Reply to one of emails that I sent from **Sakai** to the entire class.
- Use Email in **Sakai** send to me: Instructor, via Select Recipients, and leave the subject line blank.
- Use your Loyola email and put: **CHEM 102–004** in the subject line, send to **mkahveci@luc.edu**.

In most cases I will be able to respond within 48 hours Monday – Friday when classes are in session. You are encouraged to use office hours to get immediate answers to your questions, and to use your classmates as resources for help.

## 1.2 Course Materials

### 1.2.1 Textbook/Online Homework

Chemistry The Central Science, Brown et. al., 14th edition. ISBN-13: 978-0-13-441423-2; eText or hard copy. We will use Modified Mastering Chemistry as our online homework system. Both textbook and Mastering Chemistry are required.

To register for CHEM 102–004 General Chemistry B at Pearson website:

- 1 Go to <https://mlm.pearson.com/enrollment/kahveci61397>.

- 2 Sign in with your Pearson student account or create your account. Make sure that you register with **your full name** as it appears in the class roster and enter your **UVID**, when prompted. UVID is typically the leading characters before **@luc.edu** in your Loyola email address.

Please enter your UVID (i.e. UVID for the k1k2k3k4@luc.edu address: k1k2k3k4):



**Note** UVID for the *k1k2k3k4@luc.edu* address: *k1k2k3k4*

- ③ Select any available access option, if asked.
  - Enter a prepaid access code that came with your textbook or from the bookstore.
  - Buy instant access using a credit card or PayPal.
  - Select Get temporary access without payment for 14 days.
- ④ Select Go to my course.
- ⑤ Select  ▷ .
- ⑥ If you contact Pearson Support, give them the course ID:
- ⑦ To sign in later:
  - Go to <https://mlm.pearson.com>.
  - Sign in with the same Pearson account you used before.
  - Select  ▷ .

### 1.2.2 Other Materials/Resources

- Computer and mobile device (phone, tablet) for connectivity to online resources.
- Accommodation requests must be discussed with Instructor at least one week before a test.
- Scientific Calculator without memory capacity to store any course related formulas.
- Loyola Sakai course management site: <https://sakai.luc.edu/portal> and tools integrated into the site (e.g. Panopto, Tests & Quizzes).
- Loyola email. Messages are sent to the entire class via Sakai linked to your Loyola email account.
- Additional web-based systems will be used for uploading your work and facilitating feedback and evaluation. Registration will be free but required. These may include GradeScope, Flipgrid, and other sites.
- Additional software will be used. Downloads will be free but required. These may include applications that convert photos to pdfs (examples: CamScanner, Scannable, GeniusScan), collaboration materials for group work (examples: JamBoard, OneNote), testing-related software approved by the University (e.g. Respondus Browser), and others.

### 1.3 Course Description

The course further develops basic chemical principles from CHEM 101 and requires in-depth integration of concepts. Multiple perspectives of matter will be used to describe and explain characteristics, properties, and relationships across the following topics: liquids and solids, solutions, reaction kinetics, equilibria, acids and bases, reaction thermodynamics, electrochemical reactions.

Students will deepen their understanding of foundational concepts of chemistry and advance their skills in scientific problem solving, critical thinking and synthesis of concepts.

## 1.4 Course Content and Objectives

Prerequisite knowledge from Chemistry 101 is necessary for in-depth study of topics in Chemistry 102. We will focus on applying a conceptual understanding of fundamental chemical principles. Students will continue to learn the language of chemistry and develop their skills in scientific problem solving and critical thinking. This will serve as a foundation for further study in chemistry, other sciences and related disciplines.

The material is highly cumulative over two semesters, such that you will be able to do the following:

- Use multiple perspectives of matter (macroscopic, particle, symbolic levels) to qualitatively describe and explain characteristics, properties, and relationships of the following: liquids and solids, solutions, reaction kinetics, equilibria, acids and bases, reaction thermodynamics, electrochemical reactions.
- Quantify relationships between variables controlling chemical systems.
- Solve quantitative multistep problems combining multiple concepts within the systems.
- Differentiate among closely related factors, categorize problem types, and select appropriate tools to solve these problems.
- Apply chemical principles to explain natural phenomena.

## 1.5 Class Attendance & Course Coverage

Attending to the Lecture and Discussion meetings are mandatory (also see [Professionalism \(5%\)](#), pp. 8). You will have the chance to introduce yourself to multiple classmates early in the course. Our actual pace may vary from the tentative schedule, [Tentative Schedule of the Course](#) (pp. 12). If you miss a class for any reason, it is your responsibility to work through the content along with the lecture recording/lecture notes once it is posted, and I also suggest you contact a classmate for further discussion of the topics as you are still responsible for all material covered and assigned.

## 1.6 Important Deadlines

- Tuesday 7/6/2022: Late and change registration ends. Last day to withdraw without a mark of "W"
- Monday 7/11/2022: Last day to convert from credit to audit or vice versa
- Monday 7/11/2022: Last day to request or cancel pass/no pass option
- Friday 8/5/2022: Last day to withdraw from session without a penalty grade of "WF"; midnight

## 1.7 Classroom & Group Work Guidelines

The classroom is a space designed for learning. My expectations are that all voices will be heard and appreciated in the classroom, and that we will invite each other to engage while recognizing that contributions can take multiple forms.

## 1.8 Student and Faculty Expectations

I expect you to take ownership of your learning and to use the SI support as learning resources to help you reach your desired level of achievement in the course. For this course, it is anticipated that the average independent working time (outside of class) required to learn the material in order to achieve a minimal passing

grade of  $C-$  is 1 – 2 hours per day, every day, but your needs will also vary depending on your prior knowledge and ability to master cumulative concepts in the course material as the semester progresses. What can you expect of me? My primary objectives are to provide you with the tools, environment, encouragement, and support to learn Chemistry. Because the course objectives are based on what students will learn, my teaching techniques include the use of pre-lecture homework (i.e. reading assignments listed per meeting day as indicated in [Tentative Schedule of the Course](#) (pp. 12), active learning and metacognition, to help you maximize your learning. I expect that all of us will work together!

## 1.9 Pass/Fail Conversion Deadlines and Audit Policy

A student may request to convert a course into or out of the “Pass/No-Pass” or “Audit” status only before its deadline. For the Summer 2022 semester, students are able to convert a class to “Pass/No-Pass” or “Audit” through Monday 7/11/2022. Students must submit a request for Pass/No-Pass or Audit to their Academic Advisor.

## 1.10 Health, Safety, and Well-Being On-Campus

Please be familiar with and adhere to all policies and protocols posted on the Campus Info & Resources site: <https://www.luc.edu/healthsafetyandwellbeing/campusinforesources>.

## 1.11 Course Repeat Rule

Effective with the Fall 2017 semester, students are allowed only **three attempts to pass Chemistry courses with a  $C-$  or better grade**. The three attempts include withdrawals ( $W$ ). The Department advises that it is preferable to complete a course with a grade of  $C$  or  $C-$ , and to demonstrate growth in future coursework, than to withdraw from a course.

After the second attempt, the student must secure approval for a third attempt. Students must come to the Chemistry Department, fill out a permission to register form or print it from the Department of Chemistry & Biochemistry website: <https://www.luc.edu/chemistry/forms> and personally meet and obtain a signature from either the Undergraduate Program Director, Assistant Chairperson, or Chairperson in Chemistry. A copy of this form is then taken to your Academic Advisor in Sullivan to secure final permission for the attempt.

## 1.12 Student Accommodations

The Student Accessibility Center (SAC, formerly known as SSWD), Sullivan Center (773-508-3700), <http://www.luc.edu/sac>, has the mission “to support, service, and empower Loyola University Chicago students with disabilities” and to “Partner with faculty and staff to provide opportunities for collaboration, professional development, personal growth, and staff interaction, as they relate to students with disabilities.” Please direct all questions concerning accommodations of disabilities to the Student Accessibility Center. Academic accommodations afforded to students require documentation and review. The Student Accessibility Center will issue accommodation letters for registered students to present to their instructors: accommodations are not active until students present these letters to their instructors. If students’ accommodations involve attendance or deadlines, instructors and students will jointly complete and execute an Agreement Form articulating their terms. See

<https://www.luc.edu/sac/faculty/facilitatingaccommodations> for guidance about implementing various kinds of accommodations in a way that is appropriate to your class. The Student Accessibility Center stands ready to work with you.

### 1.13 Academic Integrity

All students in this course are expected to have read and to abide by the demanding standard of personal honesty, drafted by the College of Arts & Sciences, which can be viewed at:

<https://www.luc.edu/cas/advising/academicintegritystatement>. A basic mission of a university is to search for and to communicate the truth as it is honestly perceived. A genuine learning community cannot exist unless this demanding standard is a fundamental tenet of the intellectual life of the community. Students of Loyola University Chicago are expected to know, to respect, and to practice this standard of personal honesty.

Academic dishonesty can take several forms, including, but not limited to cheating, plagiarism, copying another student's work, and submitting false documents. Any instance of dishonesty (including those detailed on the website provided above or in this syllabus) will be reported to The Chair of The Department of Chemistry & Biochemistry who will decide what the next steps may be. (please specify what the punishments will be for transgressions).

### 1.14 Loyola University Absence Policy for Students in Co-Curricular Activities (including ROTC)

Students missing classes while representing Loyola University Chicago in an official capacity (e.g., inter-collegiate athletics, debate team, model government organization) shall be allowed by the faculty member of record to make up any assignments and to receive notes or other written information distributed in the missed classes.

Students should discuss with faculty the potential consequences of missing lectures and the ways in which they can be remedied. Students must provide their instructors with proper documentation i.e., "Athletic Competition & Travel Letter" describing the reason for and date of the absence.

This documentation must be signed by an appropriate faculty or staff member and it must be provided to the professor in the first week of a semester. It is the responsibility of the student to make up any assignments. If the student misses an examination, the instructor is required to allow the student to take the examination at another time (See <https://www.luc.edu/athletheadvising/attendance.shtml>).

Students who will miss class for an academic competition or conference must provide proper documentation to their instructor as early in the semester as possible.

### 1.15 Accommodations for Religious Reasons

If you have observances of religious holidays that will cause you to miss class or otherwise effect your performance in the class you must alert the instructor *within 10 calendar days of the first class meeting of the semester* to request special accommodations, which will be handled on a case by case basis.



## 1.16 Privacy Statement

Assuring privacy among faculty and students engaged in online and face-to-face instructional activities helps promote open and robust conversations and mitigates concerns that comments made within the context of the class will be shared beyond the classroom. As such, recordings of instructional activities occurring in online or face-to-face classes may be used solely for internal class purposes by the faculty member and students registered for the course, and only during the period in which the course is offered. Students will be informed of such recordings by a statement in the syllabus for the course in which they will be recorded. Instructors who wish to make subsequent use of recordings that include student activity may do so only with informed written consent of the students involved or if all student activity is removed from the recording. Recordings including student activity that have been initiated by the instructor may be retained by the instructor only for individual use

## 1.17 LUC Academic Calendar

<https://www.luc.edu/academics/schedules>

## 1.18 Course Grading

The total grade for the course is based on Attendance and Professionalism, Mastering HWs, Group Quizzes, Exams, and Final Exam.

### 1.18.1 Professionalism (5%)

Attendance will be taken in class meetings and will have 5% weight in the overall course grade. Every meeting has 2 points towards attendance category. Missing a class due to an official excuse will have 1 point attendance grade per class meeting, if the instructor is notified before class meeting on these days.

#### Definition 1.1 (What is Professionalism?)

*In Merriam-Webster, **professionalism** is defined as “the conduct, aims, or qualities that characterize or mark a profession or a professional person.”<sup>a</sup>*

<sup>a</sup>Professionalism. (2019). In Merriam-Webster.com Dictionary. Retrieved May 27, 2022 from <https://www.merriam-webster.com/dictionary/professionalism>



In the context of CHEM 102–004, professionalism is demonstrated through:

- ① attendance,
- ② punctuality, and
- ③ assignment deadline behavior.

The following excerpt is drawn from a recent study<sup>1</sup> about the effect of professionalism on students' performance in face-to-face, online, and hybrid settings.

<sup>1</sup>Ulmer, JM. (2020). Professionalism in Engineering Technology: A study of final course grades, student professionalism, attendance, and punctuality. *Journal of Technology Education*, v31(2), 56–68. Retrieved May 27, 2022 from <http://files.eric.ed.gov/fulltext/EJ1254763.pdf>



Study results indicate that **professionalism grades, in terms of attendance and punctuality, were high (median of 93.33–100%) for students earning 80–100% median final course grades.** Students earning 70–80% mean final course grades were less motivated to earn high professionalism grades— earning a 75.20% mean. There was little difference between final course grades and professionalism grades for students earning less than a 70% median for a final course grade.

Thus, I expect all of my students to attend the course meetings regularly and stay active during lecture. The following scale will be applied to determine the Professionalism grade for this course:

- Professionalism points: 10 points will be assigned to all students at the beginning of Summer 2022. In response to the potential issues revolving around punctuality and assignment deadline behaviors, –2 points will be applied for each occurrence until the maximum of five occurrences is reached.
- Attendance grade is computed based on being present in class and scaled to 10 points.
- Weighing 5% of overall course grade: 50% is designated to Attendance, and 50% is designated to Professionalism.

**Example 1.1** Let's say one attended 95% of the class meetings and had one time punctuality issue. Thus:

$$\begin{aligned}\text{Professionalism raw score} &= \frac{50 \times \text{Attendance score}}{100} + \frac{50 \times \text{Professionalism score}}{100} \\ &= \frac{50 \times 9.5}{100} + \frac{50 \times 8}{100} \\ &= 4.75 + 4 \\ &= 8.75 \text{ (out of 10 pts.)}\end{aligned}$$

Then, Professionalism category (i.e. 5% weighted) contribution towards overall course grade is computed as follows:

$$\begin{aligned}\text{Professionalism} &= 5 \times \frac{\text{Professionalism raw score}}{10} \\ &= 5 \times \frac{8.75}{10} \\ &= 4.38 \text{ (out of 5 pts. in overall course grade)}\end{aligned}$$

### 1.18.2 Mastering HWs (15%)

Mastering Chemistry is the online homework system we will use in Summer 2022. From some inquiry emails I got before, I understand that some of you already have Mastering Chemistry from CHEM 101. So, we will continue to use the known platform for more in-depth understanding of the concepts targeting at the specific sections of the textbook. While being lengthy, this kind of thorough practice is necessary to master the concepts and problem-solving skills in this course.

Considering that majority of exam questions and some other relevant standardized test (e.g. ACS Exam) are multiple-choice in nature, Mastering Chemistry assignments would prepare you for such measurements. In my experience, there is a high degree of positive correlation between Mastering Chemistry scores and overall course grades. The higher the Mastering average, the closer your future overall course grade. If you are not getting good scores from Mastering HWs, this is an early signal for you to get alarmed and adjust your learning strategy accordingly.

Mastering HWs are accessible at <https://mlm.pearson.com> and they are due at the end of the day (11:59

PM) listed on the tentative schedule. Typically, each Mastering HW will be posted five days before it is due.



**Note** *One cannot makeup a missed Mastering HW. To accommodate such cases, the lowest Mastering HW will be dropped.*

### 1.18.3 Group Quizzes (10%)

Weekly, completed in small groups (assigned by instructor). The purpose of working challenging problems as a group is to help you learn via cooperation, communication and support among your classmates as you push the limits of your knowledge. For weekly quizzes you are required to attend your scheduled discussion face-to-face to work with your assigned group. Each group submits one copy of their work at the end of the discussion period. Participating group members will receive Completion credit if the work they submit includes a meaningful attempt at completing all of the problems.



**Note** *One cannot makeup a missed Group Quiz. To accommodate such cases, the lowest Group Quiz will be dropped.*

**Example 1.2** Here is a sample rubric (per question/part) for assessing the completeness of the Group Quizzes:

- 1 pt.: Attempted with full solution / More than half of the solution
- 0 pt.: Blank / Not justified / Less than half of the solution

### 1.18.4 Exams (45%)

These exams are comprehensive reviews of the two chapter most recently covered, plus whatever other material from earlier in the course is necessary to assess you on those chapters. It will be both multiple choice and free response. The lowest exam will be dropped.

### 1.18.5 Final Exam (25%)

It's a final. Its like the exams but bigger covering all the content.

The final will be held on:

Friday, August 12, 2022. Place and time TBD
---

You will have exactly 2 hours to complete the exam. Additional time will not be granted, even if you start late. There will be no make-up final exams given under any circumstance, and the exam will not be given early, either.

Instructors may not reschedule final exams for a class for another day and/or time during the final exam period. There can be no divergence from the posted schedule of dates for final exams. Individual students who have four (4) final examinations scheduled for the same date may request to have one of those exams rescheduled. If you have four final examinations scheduled for the same date, please e-mail a petition to Adam Patricoski, Assistant Dean for Student Academic Affairs, CAS Dean's Office ([apatricoski@luc.edu](mailto:apatricoski@luc.edu)).

### 1.18.6 Grading Scale

The following scale will be used to determine letter grades.

			Thresholds	Letter Grade
			100 – 93	A
			92 – 89	A–
			88 – 85	B+
			84 – 81	B
			80 – 77	B–
			76 – 73	C+
			72 – 69	C
			68 – 65	C–
			64 – 60	D
			0 – 59	F

Category	Lowest Dropped	Weight
Professionalism	–	5%
Mastering HWs	1	15%
Group Quizzes	1	10%
Exams	1	45%
Final Exam	–	25%
Total:		100%

## 1.19 COVID Protocols and Assistance

### 1.19.1 Summer 2022 Masking Requirement

You DO NOT need to wear face masks in class unless you feel sick or you prefer otherwise. Here is the quote from the latest university news on this topic:

Effective May 27, University policy will strongly recommend, but no longer require, masks in classrooms or labs on our Chicago campuses. Faculty members, however, may continue to require masks in their classrooms. Please adhere to any specific classroom policy regarding the use of masks in the classroom. Students who are not compliant with specific classroom policies may be subject to discipline including referral to the [Office of Student Conduct & Conflict Resolution \(OSCCR\)](#) for a policy violation.

### 1.19.2 Absence (Discussion)


Illness based absences must be relayed (emailed) to the instructor by 9:00 AM. Discussion groups for absent members will be completed via Zoom. If a student is performing more than 2 sessions remotely, medical documentation for all instances must be provided. More than 6 remote sessions is not allowed short of hospitalized incapacitation.

### 1.19.3 Absence (Quizzes/Exams)

The primary mechanism for accommodating illness is the dropped exam/quiz (see Grading Scale above).


### 1.19.4 Absence (Mastering HWs)


Mastering HWs are online and no accommodations are needed.

 **Note** Documentation of illnesses is non-negotiable in the instances when it is listed above.

## 1.20 Tentative Schedule of the Course

An outline of the topics that will be covered in this course appears below. Although I will generally follow the order of presentation found in your textbook, on occasion I will deviate from this order. Please refer to any announcements posted to [Sakai](#).

 **Note** Reading assignments are indicated following the chapter titles in the schedule below. Notation: §11.1-2 means "read chapter 11 sections 1 through 2." Please note that not all sections are assigned; however feel free to read/ask questions from all sections, if you have the curiosity. Time-wise, it is highly advised to complete the reading assignments before the class meetings so that you come prepared for in-class interactions.

 **Note** MCHW means assignments done over Mastering Chemistry website. The due dates are indicated in the schedule below and they are due by 11:59 PM on the scheduled days.

MONDAY	WEDNESDAY	FRIDAY
July 4th Independence Day 2022 in United States (No Class)	6th 11. Liquids and Intermolecular Forces. Reading Assignment: §11.1-2, §11.4-6, §12.1-4 MCHW Syllabus	8th 13. Properties of Solutions. Reading Assignment: §13.1-6 MCHW 1 (Ch 11)
11th 14. Chemical Kinetics. Reading Assignment: §14.1-4, §21.4, §14.5-7 MCHW 2 (Ch 13)	13th 15. Chemical Equilibrium. Reading Assignment: §15.1-7 MCHW 3 (Ch 14)	15th 15. Chemical Equilibrium. Reading Assignment: §15.1-7 Exam 1 (Covering Chapters 11, 13, 14, or as announced)
18th 16. Acids and Bases. Reading Assignment: §16.1-10 MCHW 4 (Ch 15)	20th 16. Acids and Bases. Reading Assignment: §16.1-10	22nd 17. Acid-Base Equilibrium. Reading Assignment: §17.1-6 MCHW 5 (Ch 16)
25th 17. Acid-Base Equilibrium. Reading Assignment: §17.1-6	27th 17. Acid-Base Equilibrium. Reading Assignment: §17.1-6 MCHW 6 (Ch 17)	29th 19. Chemical Thermodynamics. Reading Assignment: §19.1-7 Exam 2 (Covering Chapters 15, 16, or as announced)
Aug 1st 19. Chemical Thermodynamics. Reading Assignment: §19.1-7	3rd 19. Chemical Thermodynamics. Reading Assignment: §19.1-7 MCHW MCHW 7 (Ch 19)	5th 20. Electrochemistry. Reading Assignment: §20.1-7, §20.9 Exam 3 (Covering Chapters 17, 19, or as announced)

MONDAY	WEDNESDAY	FRIDAY
8th 15 20. Electrochemistry. Reading Assignment: §20.1-7, §20.9 MCHW 8 (Ch 20)	10th 16 Review	12th 17 The cumulative final exam will be held on Friday, August 12, 2022. Place and time TBD .



**Note** Final Exam will be held on Friday, August 12, 2022. Place and time TBD .



**Note** Changes to this syllabus may be made when deemed appropriate.