

LOYOLA UNIVERSITY CHICAGO
DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

CHEM 102 – General Chemistry B
SYLLABUS, SPRING 2021

Instructor: Dr. Joerg Zimmermann e-mail: jzimmermann@luc.edu
Office Hours: Tuesdays 10 AM to 12 PM via Zoom phone (cell): (858) 405 7026
(link on course website) Web Page: sakai.luc.edu

COURSE DESCRIPTION

Introduces quantitative approaches to chemical equilibria and kinetics. Fundamental principles of thermodynamics introduced in CHEM 101 are explored in greater depth, including solubility, acids and bases, oxidation and reduction, and electrochemistry. Applications of these topics to practical chemical analysis are discussed.

PREREQUISITES/COREQUISITES

CHEM 101 (or CHEM 105) and completion of MATH 118 or higher with a grade of C- or better.

COURSE FORMAT

Synchronous lectures (MoWeFr 9:30 PM – 10:20 AM) and discussions (Fr 10:30 AM – 11:20 AM OR Fr 11:30 AM – 12:20 PM) in HyFlex format. Note that the first two weeks of the semester will be taught fully online.

PREFERRED NAME AND GENDER PRONOUN

This course affirms people of all gender expressions and gender identities. If you prefer to be called a different name than what is indicated on the class roster, please let me know. Please correct me on your preferred name and gender pronouns. If you have any questions or concerns, please do not hesitate to contact me.

OFFICE HOURS (Tue 10 AM – 12 PM)

Office hours are for those with questions, who seek advice, want to share and/or provide feedback. You can “walk in” or make an appointment ahead of time. Discussion can be about this class and beyond – office hours are for EVERYONE. We can talk about college life in general, class work, class issues, questions you might have, your academic plans, schedules, grades, a letter of recommendation you may need, or general questions or concerns. If you are unable to attend the regular office hours, I am happy to meet at a time that works for you, just ask me (either in person or via email).

As family matters, assignments, essays, and tests in all of your courses demand your attention, there could be moments when you need assistance. If you are experiencing difficulties inside or outside the classroom that may affect your performance in this course, I WANT TO HEAR ABOUT IT. I will do my best to accommodate your specific needs to help you succeed.

COMMUNICATION OUTSIDE OF CLASS TIME AND OFFICE HOURS

Course-related communications between you and me should be conducted using the Loyola email system. Check your email often, AT LEAST ONCE A DAY. Avoid using personal email accounts, I may not receive those emails due to spam filters. You can also call or text me at my cell-phone number: (858) 405 7026.

CAMPUS RESOURCES

Loyola University is dedicated to helping students succeed in their education endeavors. There are many resources to assist you with your online courses. You can find brief descriptions of the various types of support with links to the respective pages, as well as quick links to each, at <https://www.luc.edu/online/resources/index.html>.

CLASS BEHAVIOR EXPECTATIONS

We strive for a learning environment of equity, respect and inclusiveness. Therefore, all of us are expected to follow these basic principles:

- Demonstrate respect for oneself and for others.
- Treat others with dignity and behave in a way which promotes a physically and psychologically safe, secure, and supportive climate.
- Allow all community members to engage as full and active participants where the free flow of ideas is encouraged and affirmed.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

If you require special accommodations due to a disability, documented or not, and are comfortable sharing this information with me, please do so at your earliest convenience. In addition, the university provides services for students with disabilities. Any student who would like to use any of these university services should contact the Student Accessibility Center located in Sullivan Center (phone: 773-508-3700, email: sac@luc.edu). Note that certain academic accommodations afforded to students, e.g. additional time on exams, require documentation and review. Further information is available at <https://www.luc.edu/sac>.

COURSE MATERIALS

1. **Brown et al: *Chemistry, The Central Science* 14th Edition**, Pearson (ISBN 9780134414232)
2. **TopHat subscription** (see course website for details). TopHat will be used during lecture for attendance and participation points.
3. **An inexpensive NON-GRAPHING, NON-PROGRAMMABLE scientific calculator.** It should be able to do logarithms, scientific notation and basic arithmetic. A TI-30 or equivalent is recommended.
4. **A laptop or smartphone (android or iphone) with web browsing capability** for in-class activities.
5. **Access to your LUC email and the course web page** (Sakai). Check here [often](#) for general information, announcements, discussion forums, and grades. YOU ARE RESPONSIBLE TO BE AWARE, WITHIN 24 HOURS, OF ALL EMAILS SENT TO YOUR LUC ACCOUNT, ANNOUNCEMENTS MADE ON THE WEBSITE AND FOR ALL MATERIALS PLACED THERE FOR THIS COURSE.

RECOMMENDED SUPPLEMENTAL MATERIALS

1. **A ring binder** to keep all notes, worksheets, and other supplemental material organized.
2. **Additional Supplementary Materials** may be posted on the course web page.

ACADEMIC CALENDAR

You are responsible for understanding all processes and timelines associated with dropping or withdrawing from this course, file for a PASS/FAIL conversion etc. The Loyola University Chicago academic calendar that lists important dates and deadlines for the semester can be found at <https://www.luc.edu/academics/schedules>.

EXAMS

- **Midterm Exam:** There will be three midterm exam tentatively scheduled for 3/1, 3/29, and 4/26 during class.
- **Final Exam:** The Final Exam will take place on Wednesday, May 5, 8:00 PM - 10:00 PM. The final cannot be rescheduled except with verifiable proof of serious illness or a police report, or if you have four or more final exams scheduled for the same day, in which case you can petition to the Assistant Dean for Student Academic Affairs in the College of Arts and Sciences for rescheduling.
- **Quizzes:** Approximately 10 quizzes will be scheduled throughout the semester. Dates will be announced on the course website.
- If you for any reason require special accommodations during any of the exam, contact me WELL BEFORE the exam. The day of the exam is too late.

LATE/MISSED WORK

- If you miss deadlines or exams for valid reasons (emergencies related to family, medical, legal or immigration issues) you must contact me by email within 48 hours of the exam to avoid failing the exam. In case of illness, a doctor's note is required.
- Assignment deadlines are firm. Assume that technology will fail sometimes. Do not assume that everything will go smoothly when it comes to computers. Plan ahead. Do not leave completion/submission of assignments to the last possible moment.

ACADEMIC INTEGRITY

Before beginning, let me state EMPHATICALLY that I firmly believe that 99.9% of my students (if not 100%) are basically honest people. I also know that the pressures of school, grades, family, etc. can be overwhelming at times and can lead to choices one would not normally make. That said, I view violations of Academic Integrity as a very serious offense against your fellow students and against the integrity of the university, as well as a personal affront to me. There will be zero tolerance for infractions. If you believe there has been an infraction by someone in the class, please bring it to my attention. If caught, I will pursue disciplinary action against all parties TO THE FULLEST EXTENT POSSIBLE; this may include lowering of grades, failure, suspension or expulsion.

Academic dishonesty can take several forms, including, but not limited to cheating, plagiarism, copying another student's work, and submitting false documents. 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 here: <http://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.

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. Dishonest behavior such as any form of cheating may cause to fail (grade = 0 or "F") an assignment, examination, or the course, depending the severity of the case. That grade assigned because of cheating cannot be "dropped".

GRADING STANDARDS AND POLICIES:

You will be evaluated based on the following:

1. course participation	300 pts	(42%)
2. midterm exam (100 pts each, lowest score dropped)	200 pts	(29%)
3. final exam	200 pts	(29%)
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TOTAL ACHIEVABLE POINTS	700 pts	(100%)

The following grading standards will be used (based on TOTAL points achieved):

A	91.0 % and up	B +	83.0 % – 86.9 %	C +	70.0 % – 74.9 %	D	50.0 % – 59.9 %
A –	87.0 % – 90.9 %	B	79.0 % – 82.9 %	C	65.0 % – 69.9 %	F	49.9 % and below
		B –	75.0 % – 77.9 %	C –	60.0 % – 63.9 %		

COURSE PARTICIPATION

Course participation points are awarded for quizzes (approximately 150 pts), homework (100 pts), and in- and out-of-class activities (100 pts). Therefore, you have the opportunity to earn approximately 350 course participation points, however, **course participation points max out at 300 pts**. Hence, you can make up for lost points of one participation component with points from another.

IN- AND OUT-OF-CLASS ACTIVITIES

Part of this course is taught in a 'flipped classroom' format, i.e. employing active-learning instructional strategies that involve in-class activities and pre-class or post-class assignments. There will be ample opportunity to earn points and they max out at 100 pts, so missing a few of these assignments will not affect your score. Therefore, you will not be able to make up for missed assignments even if your absence is excused (e.g. illness, sporting events etc.) Most in-class activities will be performed using

TOPHAT

We will use TopHat for in-class instant polling. Every TopHat poll has points awarded for participation (regardless whether or not you gave the correct answer), and for giving the correct answer. Participate in every TopHat poll to not miss out on those points!

COPYRIGHT OWNERSHIP IN COURSE MATERIALS

My lectures and course materials, including presentations, tests, exams, outlines, and similar materials, are protected by copyright. I am the exclusive owner of copyright in those materials I create. I encourage you to take notes and make copies of course materials for your own educational use. However, you may not, nor may you knowingly allow others to reproduce or distribute lecture notes and course materials publicly without my expressed written consent. This includes providing materials to commercial course material suppliers such as CourseHero and other similar services.

ACADEMIC GRIEVANCES AND ACADEMIC APPEALS POLICIES

Students have the right to protection against arbitrary and capricious academic evaluations. Arbitrary and capricious means that there is no relation between the grade given and the student's performance in the class and that a reasonable person could not find that the grade was deserved. Mere disagreement or dissatisfaction with a grade does not constitute a basis for grievance. The procedure to resolve disputes can be found at: https://www.luc.edu/academics/catalog/undergrad/reg_academicgrievance.shtml.

Students also have the opportunity to request a review of circumstances that impact their academic standing or progress at the University. For example, you can appeal for a change in academic record, a finding of academic misconduct, a decision related to transfer credit, or a dismissal for poor scholarship. The procedure to request reviews can be found at <https://www.luc.edu/academics/catalog/undergrad/academicappeals>.

PHOTOGRAPHS, AUDIO OR VIDEO RECORDINGS

Any photographs taken or audio or video recordings of this course or materials of this course made by you are for the students' personal academic use only and may not be distributed in any manner (to any other individual or to the public) without written consent of the instructor (me).

In this class software will be used to record live class discussions. As a student in this class, your participation in live class discussions will be recorded. These recordings will be made available only to students enrolled in the class, to assist those who cannot attend the live session or to serve as a resource for those who would like to review content that was presented. All recordings will become unavailable to students in the class when the Sakai course is unpublished (i.e. shortly after the course ends, per the Sakai administrative schedule). Students who prefer to participate via audio only will be allowed to disable their video camera so only audio will be captured. Please discuss this option with your instructor.

The use of all video recordings will be in keeping with the University Privacy Statement shown below:

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.

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).

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: <http://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.

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. intercollegiate 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 (develop standard form on web) 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 as far in advance of the absence as possible. It is the responsibility of the student to make up any assignments. If the student misses an examination, the instructor is required to give the student the opportunity to take the examination at another time.

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.

DISCLAIMER

THIS SYLLABUS MAY BE AMENDED AND/OR ALTERED AT ANY TIME DURING THE SEMESTER AT THE DISCRETION OF THE INSTRUCTOR.

CHEM 102 Course Schedule SPRING 2021 (*tentative*)*

Week	Dates	MON	WED	FRI	DISC
1	1/20 1/22	MLK Holiday no class	introduction	intermolecular forces	intermolecular forces
2	1/25 1/27 1/29	phase diagrams	solutions	concentration and solubility	solutions
3	2/1 2/3 2/5	colligative properties	review	chemical equilibrium	equilibrium
4	2/8 2/10	chemical equilibrium	ICE tables	BREAK no class	BREAK no discussion
5	2/15 2/17 2/19	equilibrium calculations	review	acids and bases	ICE tables
6	2/22 2/24 2/26	pH	acid calculations	base calculations	midterm review
7	3/1 3/3 3/5	MIDTERM 1	common ion effect	review	acid and base calculations
8	3/12	BREAK no class	BREAK no class	buffer solutions	buffer solutions
9	3/15 3/17 3/19	buffer solutions	titrations	titrations	titrations
10	3/22 3/24 3/26	review	entropy	entropy	midterm review
11	3/29 3/31	MIDTERM 2	free energy	EASTER HOLIDAY no class	EASTER HOLIDAY no discussion
12	4/7 4/9	EASTER HOLIDAY no class	equilibria	review	free energy
13	4/12 4/14 4/16	reaction kinetics	first-order kinetics	reaction mechanisms	kinetics
14	4/19 4/21 4/23	review	redox reactions	redox reactions	midterm review
15	4/26 4/28 4/30	MIDTERM 3	galvanic cells	galvanic cells	final review
FINAL WEEK		FINAL EXAM ON WEDNESDAY, 5/5, 8:00 PM to 10:00 PM			

* PLEASE NOTE THAT THE SCHEDULE IS APPROXIMATE WITH RESPECT TO COVERAGES; WE MAY GET BEHIND OR AHEAD AS THE SEMESTER PROGRESSES. YOU ARE RESPONSIBLE FOR EVERYTHING SAID IN LECTURE, EVEN IF YOU MISS CLASS.