

Chemistry 101, General Chemistry A, Sec 05, 3 credits  
Syllabus – Spring 2020

### **Instructor**

Instructor: Dr. Y. Corey Lin, Department of Chemistry & Biochemistry

Office: Flanner Hall 104 (shared office, please knock and wait for a response)

Email: ylin21@luc.edu (email subject line should read "#CHM101-05")

To receive a response: send via Sakai to Instructor (select recipients) and leave subject line blank OR use your Loyola email account and send to ylin21@luc.edu with only Chem 101-005 in subject line. In most cases I will be able to respond within 24 hours during the week when I am on campus

Office Hours: STEM Center (Centennial Forum 1<sup>st</sup> floor): Mondays & Fridays, 11:30 am -1pm or By appointment via emails.

You are welcome to stop by at any time to see if my door is open and check my posted schedule. Occasional extra hours may be announced in class, and online office hours are available by prior appointment via Zoom (link will be posted/emailed, use your Loyola login) or by appointment via email.

### **Course Information**

Lecture Room: Flanner Hall Atrium **Mondays, Wednesdays, and Fridays 1:40-2:30 pm**

Discussion Room: Wednesday **8:10-9:00 am FH-7 & 9:15-10:05 pm FH-7**

Prerequisites: A satisfactory performance on the Loyola math proficiency test, or completion of Math 117 with a grade of C- or better. A student may be withdrawn from the course at any time if the prerequisites have not been satisfied.

Co-requisite: CHEM 111 (CHEM111 is a separate course with a separate instructor and does not influence your grade in CHM101.)

Exam Dates:

Note: **The deadline to withdraw for the Spring 2020 Term is Mar 23<sup>rd</sup> 2020.**

### **Course Philosophy and Goals**

General Chemistry A (CHM101) is the first course in a two-course sequence for general chemistry. This course surveys the universal concepts and principles underlying all of the disciplines of chemistry and describes how chemistry impacts our daily lives. The goals for this course are for you to understand conceptually how atoms combine to form molecules, how these molecules interact and react with each other, and how these reactions manifest in the real world. To accomplish these goals, we will develop problem-solving skills by utilizing simple mathematical equations as well as reading, interpreting, and comprehending graphs and tables to evaluate problems, make predications, and to draw conclusions. At the end of this course, you will be able to:

- Demonstrate a basic comprehension of basic general chemistry concepts utilizing the correct vernacular and terminology;
- Determine the number of molecules, mass, and moles using stoichiometry, chemical logic, and reasoning;
- Apply periodic trends to predict the physical properties of a given element;
- Determine the electronic structure of a given atom and/or molecules as well as discuss its impact on chemical bonding and reactivity.

### Required Materials

1. Chemistry, The Central Science, 14th Edition by Brown, LeMay, Bursten, Murphy, Woodward, Stoltzfus: There are hardback and electronic versions of this book. You are welcome to purchase older versions of the textbook; however, if there are discrepancies between the versions of text, the newer version is correct. I will also refer to page numbers and tables using the newest version of the textbook.
2. MasteringChemistry Student Access Code: When you purchase the textbook from the Loyola bookstore, verify that it comes with this code. Otherwise, you must obtain it separately from the bookstore or <http://www.masteringchemistry.com>; do not purchase the "One Key" or the "Student Media Pak" since these don't have access to the graded portions. If you have paid for access to Mastering Chemistry within the last 24 months, your access code is likely valid. The Course ID is: **MCLIN888168 (Please feel free to contact me or Pearson Ed. Rep. if you need assistance.)**. I suggest you look at the assignment "Introduction to Mastering Chemistry" to learn how to enter answers into Mastering Chemistry.
3. Scientific Calculator: You may use a nonprogrammable, nongraphing calculator on exams in this course. Calculator backs/covers, sharing of calculators, and use of cell phone calculators are not permitted during exams. Use of such a calculator is a breach of the Loyola Academic Integrity Code and will be handled accordingly. Dr. Lin will NOT provide a calculator on the day of the exam; a calculator will be expected in order to complete the problems on the exams. The calculator should be brought to class every lecture to use on discussion problems.
4. Sakai System: Web access is Required for Sakai (also see [sakai.luc.edu](http://sakai.luc.edu) for additional information/ recommendations), as well as for your Loyola email account regularly for messages sent to the class via Sakai.

\*Copyright/Intellectual Property reminder: course materials provided by your instructors at Loyola may not be shared outside any course without the instructor's written permission.

## Course Grading

Your course grade will be determined by the credit you earn on the homework assignments, prelecture assignments, clicker participation, and three exams. All exams are cumulative (as life is a cumulative experience). The opportunities to earn credit towards your final score are:

Homework Assignments (11 of 12)	165 points (15 points for each assignment)
Discussion Quiz (12 of 14)	96 points (8 points for each assignment)
In class Participation	60 points
Exam 1	170 points
Exam 2	170 points
Exam 3	170 points
<u>Final</u>	<u>170 points</u>
Total	1001 points

*Grading Scale:* Below are the minimum points for a particular grade. This scale may be adjusted (to the benefit of the student) at the discretion of Dr. Lin.

<i>Grade</i>	<i>Course Points</i>
<b>A</b>	≥925
<b>A-</b>	≥900
<b>B+</b>	≥875
<b>B</b>	≥810
<b>B-</b>	≥780
<b>C+</b>	≥750
<b>C</b>	≥690
<b>C-</b>	≥650
<b>D</b>	≥500

*Satisfactory/Unsatisfactory Grades:* For midterm grades, late withdraw forms, and other instances where a satisfactory/unsatisfactory grade is required, grades of C- and above will be considered satisfactory, and grades of D and below will be considered unsatisfactory.

*Homework Assignments:* There are a total of 12 homework assignments with the 11 highest scores counting towards your grade. There are no make-up homework assignments. A 10% per hour penalty is assessed for late homework assignments. Homework assignments are administered on MasteringChemistry (<http://www.masteringchemistry.com>) and consist of 22 questions, where each question is worth 1 point. The maximum score for any homework assignment is 15 points; there is an excess of 2 points on each homework assignment to account for ambiguous mastering chemistry questions. The homework assignments are due at 11:59 pm on a given date (see the table below for specific dates). You may use the book and work in groups on these problems. Each student is responsible for their own assignment. The problems are presented in a random order. Once the due date has lapsed, the homework problems for that assignment will be made available for additional practice.

*Discussion Quiz:* There are a total of 15 prelecture assignments with the 13 highest scores counting towards your grade. There are no make-up Discussion Quiz; late for the quiz will not be accepted. Discussion quizzes are administered on material and review from the lecture and consist of 6 questions, where each question is worth 1-2 point. The questions are based on the chapter reading.

*In Class Participation:* There will be the in class participation assignment for each week lecture. You have to submit the assignment before the end of the last lecture and have the correct both of calculation and answer. Your in-class participation score may be deducted due to missing work or incorrect answer. There is no make-up opportunity for the in-class participation

*Exams:* There are three exams in this course, which will be administered in class as indicated on the course schedule and on the first page of the syllabus. Approved absences from exams require notification with documentation prior to the regularly schedule time of the exam for known conflicts (university functions, religious holidays, etc.). For unforeseeable circumstances (illness, personal emergency, etc.), official documentation is required. Dr. Lin is the sole arbiter of what constitutes an approved absence. With an approved absence, the average percentages of the other 2 exams will be used to determine the grade for the missed exam. This option can only be used once during the semester and *not* for the third exam. Any absence from an exam without prior approval for a known conflict or a documented excuse from an unforeseeable circumstance will result in a grade of zero for that exam. Once a student begins an exam, you may not leave the lecture hall the exam is completed. Once a student turns in a completed exam, tardy students will not be able to begin the exam.

**Midterms: 60 minutes, Feb 7<sup>th</sup> , Mar 13<sup>th</sup>, Apr 17<sup>th</sup>. It is in your best interest to prepare for and take all exams**

**Final: 2 hours, Friday May 1<sup>st</sup> , 9:00-11:00 am. Mandatory: a missed final exam will result in a course grade of F. The final exam must be taken on the date scheduled per College of Arts and Sciences policy.**

### ***Exam Procedures***

Phones, tablets, wireless devices, etc are not permitted. If seen or heard, device will be confiscated along with exam copy and student will be dismissed. Seating arrangements may be altered before and during the exam. Show up early with three items: (1) your Loyola ID, visible on desk to be checked; (2) working pencil(s); (3) working approved calculator ([www.actstudent.org/faq/calculator.html](http://www.actstudent.org/faq/calculator.html)), with the memory cleared, to be checked, extra batteries are recommended. All jackets, bags, loose accessories, etc must be left at the front of the classroom. Once the exam is distributed, if you exit the room (quietly, please), for any reason before time is up, your exam is complete and will be collected. I will return your midterm exam scoring sheets *during the discussion periods or in office hours* (copies are kept) and the exam questions will be

posted on 4th floor Flanner by the elevators. Scoring errors must be brought to my attention in person no later than one week after the exams are returned. The final exam cannot be returned.

**Extra Credit: There will be two opportunities for extra credit for this course in lecture as the popup quiz or participation. TBD.**

*Grading Disputes:* If you wish to dispute a score for an assignment, you must meet with Dr. Lin during office hours no later than two weeks after the graded work is due. Grades outside of this window will be considered final. Students must put disputes in writing and point to specific instances in the evaluation of the assignment is not in agreement with the rubric/requirements. Limit disputes to no more than 1 page.

### **Office Hours**

Office hours are times when Dr. Lin will be available in his office to answer specific questions related to the course. To make effective use of Dr. Lin's office hours, please bring specific problems and questions as well as attempted work when visiting office hours. If a student would like to meet with Dr. Lin at times outside of his office hours, please make an appointment at least a week prior so office hours maybe rescheduled.

### **Academic Dishonesty**

Academic dishonesty, such as cheating on exams, will be handled as infractions of the Loyola University Honor Code and with a zero tolerance policy. Punishment for cheating may range from receiving an F grade for the assignment to receiving an F for the course and possibly suspension and/or expulsion from the University. Students may appeal the instructor's decisions through university channels. Please familiarize yourself with Loyola University's academic policies and regulations.

### **Students with Disabilities**

Students with disabilities who seek reasonable accommodations in the classroom or other aspects of performing their coursework must first register with the located in **Student Accessibility Center (SAC) located in Sullivan Center, Suite 117 6339 N. Sheridan Road Chicago, IL 60660**. SAC staff members work with students to obtain required documentation of disability and to identify appropriate accommodations as required by applicable disability laws including the Americans with Disabilities Act (ADA). After receiving all necessary documentation, the SAC staff determines whether a student qualifies for services with the SAC and if so, the accommodations the student requires will be provided. SAC staff then prepares a letter for the student to provide faculty advising them of approved accommodations. The student will receive the accommodation after the letter is delivered by the student in person or electronically. For further information, contact the SAC by phone (773)508-3700, e-mail: [sac@luc.edu](mailto:sac@luc.edu), or visit the SAC website <https://www.luc.edu/sac/> or [www.luc.edu/csaa](http://www.luc.edu/csaa).

### **Military Students**

Military and veteran students may need both physical and academic accommodations and may contact the SAC or CASS to find further information.

### **Student Athletes and Students Involved with University Activities**

You must meet with Dr. Lin during his office hours during the first two weeks of the semester so your individual needs and accommodations can be made. Contact Dr. Lin by email to schedule an in person appointment if you cannot make Dr. Lin's office hours. Failure to meet with Dr. Lin will result in no accommodations for the remainder of the semester and you will be responsible for any exams. Any documentation that requires an instructor's signature must be presented during office hours or by appointment (*not before or after lecture*) to allow sufficient time to review grades, etc., as required by such activity. Please see Dr. Lin if you have any questions concerning these policies.

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. (<https://www.luc.edu/athleteadvising/attendance.shtml>)

### **Academic Courtesy**

Lectures begin at 1:40 pm and will end at 2:30pm on Mondays, Wednesdays, and Fridays. It is expected that all students will be in class on time, remain until dismissed, and be fully engaged. If you are late to lecture, enter using the doors at the back of the lecture hall and do not enter at the front of the classroom. If you must leave early, speak with Dr. Lin prior to class and wait for a natural break to leave using the doors at the back of the lecture hall so as to minimize disruption to the rest of the lecture. Students with cell phones and/or other electronic devices that ring during class and/or other disruptive behavior may receive a penalty, per occurrence, to their overall course score. Electronic cigarettes are prohibited in the lecture hall. As a courtesy to other students, disruptive students may be asked to leave the class.

### **Accommodations for Religious Reasons**

If you have observances of religious holidays that will cause you to miss class or otherwise affect 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.

### Tentative Lecture and Exam Schedule

Please note that while the dates for certain chapters may be adjusted, the dates for the examinations will not change.

Week	Dates	Notice!	Monday	Wednesday	Friday
1	Jan 13, 15, 17	First Day of the semeste	Chemistry Introduction & Review of Units, Conversions and Problem-Solving Scales, Representations and Properties of Matter (Chapter 1) Atoms & Atomic Structure (Chapter 2)		
2	Jan 20, 22, 24	<b>MLK on 01/20</b>	Isotopes, Masses (Chapter 2), The Mole (Chapter 3) Nuclear Chemistry, Synthesis of the Elements, Nuclear Stability, Radioactivity Radioactive Decay, Nuclear Transmutations (Chapter 21)		
3	Jan 27, 29, 31		Energy from Nuclear Reactions, Fission & Fusion (Chapter 21) Periodic Table, Molecules, Chemical Formulas & Representations, Ions, Compounds, Formulas & Nomenclature (Chapter 2)		
4	Feb 3, 5, 7		Formula Weights, Molar Masses, Counting particles & moles, Mole Ratios & Formula Analysis (Chapter 3)	<b>EXAM I</b> (all topics thru 2/5)	
5	Feb 10, 12, 14		Chemical Equations & Reactions, Stoichiometry: applying mole ratios to reactions Limiting Reactants, Excess Reagents, Reaction Yields (Chapter 3)		
6	Feb 17, 19, 21		Solutions, Electrolytes, Dissolution, Solubility, Acids & Bases, Precipitation, Exchange Reactions, Ionic Equations, RedOx Reactions (Chapter 4)		
7	Feb 24, 26, 28		Concentration & Molarity, Solution Stoichiometry (Chapter 4) Energy, Thermodynamics, Heat, Enthalpy, Heat Transfer (Chapter 5)		
8	March 2-7	<b>no classes - SPRING BREAK</b>			
9	March 9, 11, 13		Hess's Law, Formation Enthalpy, Bond Enthalpy (Chapter 5) Waves, Photons, Energy, Quantization (Chapter 6)	<b>EXAM II</b> (topics thru 3/11, focus on new and cumulative material)	
10	March 16, 18, 20		Atomic Line Emission Spectra, Hydrogen Atom, Quantum Mechanics, Orbitals (Chapter 6) Electron Configurations (Chapters 6, 7)		
11	March 23, 25, 27	<b>Last Day to drop !!!</b>	Effective Nuclear Charge & Periodic Properties (Chapter 7) Lewis Symbols, Bonding, Octet Rule (Chapter 8)		
12	Mar;April 30, 1, 3		Lewis Structures, Bond Polarity & Partial Charges, Formal Charges, Resonance Contributors, Octet Exceptions, Bond Properties (Chapter 8)		
13	April 6, 8, 10	<b>No Class 04/10</b>	Molecular Shapes, VSEPR Model Geometry (Chapter 9)		
14	April 13, 15, 17	<b>No Class 04/13</b>	Geometry & Molecular Polarity Valence Bond Theory, Hybrid Orbitals, sigma and pi bonding (Chapter 9)	<b>EXAM III</b> (topics thru 4/8, focus on new and cumulative material)	
15	April 20, 22, 24		Gas Properties, Gas Laws, Ideal Gas Law Applications Kinetic-Molecular Theory, Real Gases (Chapter 10)		
<b>Friday May 1<sup>st</sup> 9:00am FINAL EXAM Cumulative &amp; Comprehensive</b>					

*Note: Dr. Lin reserves the right to change the syllabus to improve the classroom experience.*