

**Harry S Truman College**  
*One of the City Colleges of Chicago*

*Our Mission dedicates us to deliver high-quality, innovative, affordable and accessible educational opportunities and services that prepare students for a rapidly changing and diverse global economy.*

**General Chemistry I**  
**Chemistry 201 FGH (IAI CHM 911)**

**Instructor:** Dr. Raymund C. Torralba

**E-mail:** [rtorralba@ccc.edu](mailto:rtorralba@ccc.edu)

**Office:** Rm. 3830

**Tel:** (773) 907- 4691

**Office Hours:** MW 10:00 – 12:00; TTh 1:00 – 2:30

**Class Period:** Room 3184 T 8:35 am – 12:20 pm  
Room 3831 Th 8:35 am – 12:20 pm

**Website:** [Blackboard](http://ccc.blackboard.com) (<http://ccc.blackboard.com>)

**Tutoring:** Student Services Building, **Suite 177** (Tutoring Center)

**Catalog Description:**

*General Chemistry I* – Topics include the periodic table of the elements, atomic structure, basic concepts of quantum theory, bonding, stoichiometry of compounds and reactions, thermochemistry, the gaseous state, basic concepts of the liquid and solid states, solutions, and acids and bases. Writing assignments as appropriate to the discipline are part of the course. **Prerequisites:** Eligibility for Mathematics 140 or higher AND grade of C or better in Chemistry 121 or one year of high school chemistry, or pass the chemistry placement test, or consent of Department Chairperson. Four (4) lecture and four (4) laboratory hours per week based on 16 weeks. **5 credit hours**

**Required Materials:**

- 1. Textbook:** *General Chemistry:Principles and Modern Applications with MasteringChemistry*, 10<sup>th</sup> ed., by Petrucci, Herring, Madura, and Bissonnette, Pearson 2011. ISBN 9780136121497 (Note: You can purchase this - or an earlier edition - and the access to *MasteringChemistry*, our online homework management system, separately online. Another option is to purchase just the access to *MasteringChemistry* that includes the electronic version of the textbook, the e-text. Beck's Bookstore also offers a condensed version for a lower price for those who do not need to continue on to Chem 203, but you will need to purchase access to *MasteringChemistry* separately for this version.)
- 2.** You must have a **scientific calculator** to make arithmetical computations for class work and tests. You may not use the calculator app from your mobile device during the tests.
- 3. Laboratory Manual:** *Chemical Principles in the Laboratory*, 10<sup>th</sup> ed., by E. Slowinski, W.C. Wolsey, and W.L. Masterton, Cengage, 2011. ISBN 9780840048349

## **Truman College General Education Goals:**

- G1.** The student exhibits social and ethical responsibility and is aware of her or his place in the global community.
- G2.** The student performs effectively in the workplace and has the ability to work and make effective use of a wide variety of current technologies.
- G3.** The student communicates effectively in both written and oral formats.
- G4.** The student demonstrates the ability to think critically, abstractly, and logically.
- G5.** The student gathers interprets and analyzes data.

## **Course Objectives:**

- 1. Develop students' ability to demonstrate and communicate in both written and verbal modes their understanding of the fundamental principles of general chemistry and their applications
- 2. Develop the students' ability to integrate various technologies in collecting, recording, analyzing, evaluating, and presenting data and information
- 3. Create in the students a culture of safety and integrity in the conduct of their laboratory experiments and in the manner in which they gather, interpret, analyze, and evaluate data
- 4. Foster student engagement in their own learning
- 5. Develop process skills that help the students become more competitive in the job market
- 6. Engage the students in proposing logical solutions to current, unresolved problems relevant to individuals/society using the knowledge and skills acquired in the course

## **General Student Learning Outcomes**

*(Specific learning outcomes are listed on Blackboard)*

At the completion of this course, the successful student should be able to:

- 1. Describe and classify matter by its physical state and bonding behavior
- 2. Compare and contrast the chemical behavior and physical properties of substances
- 3. Solve stoichiometry problems
- 4. Predict the electronic and molecular structures of common substances
- 5. Apply the scientific method through guided inquiry laboratory activities and simple experiments
- 6. Demonstrate the safe and proper use of standard and correct chemistry equipment in laboratory experiments
- 7. Record, graph, analyze, and interpret data obtained from experimentation
- 8. Relate the above to each other and to real issues that are relevant to society and communicate the same effectively in written and verbal form

Fall 2012 Chem 201 FGH Topic List and Tentative Schedule

Date	Room 3184	Date	Room 3831
Aug 21	Introduction/Pretest Ch. 1 Matter – Its Properties and Measurement	Aug 23	<b>Lab Check-in;</b> Lab Safety Lecture Pre-test; Ch. 1 (cont.)
Aug 28	<b>Quiz 1</b> Ch. 2 Atoms and Atomic Theory	Aug 30	Ch. 2 (cont.) <b>Expt 1</b> The Densities of Liquids and Solids
Sept 4	<b>Quiz 2</b> Ch. 2 (cont.) Ch. 3 Chemical Compounds	Sept 6	Ch. 3 (cont.) <b>Expt 3</b> Resolution of Matter into Pure Substances II. Fractional Crystallization
Sept 11	<b>Quiz 3</b> Ch. 3 (cont.); Ch. 4 Chemical Reactions	Sept 13	Ch. 4 (cont.) <b>Expt 4</b> Determination of a Chemical Formula
Sept 18	<b>Quiz 4</b> Ch. 4 (cont.)	Sept 20	Ch. 4 (cont.) <b>Expt 6</b> Properties of Hydrates
Sept 25	<b>EXAM 1</b> (Ch. 1-4) Ch. 5 Intro to Reactions in Aqueous Solutions	Sept 27	Ch. 5 (cont.) <b>Expt</b> –Double Displacement Reactions (Lab handout)
Oct 2	<b>Quiz 5</b> Ch. 5 (cont.)	Oct 4	Ch. 5 (cont.); Ch. 6 Gases <b>Expt</b> –Single Displacement. Reactions (Lab handout)
Oct 9	<b>Quiz 6</b> Ch. 6 (cont.)	Oct 11	<b>Expt 9</b> Molar Mass of a Volatile Liquid (Modified Procedure)
Oct 16	<b>Quiz 7</b> Ch. 7 Thermochemistry	Oct 18	Ch. 7 (cont.) <b>Expt 14</b> Heat Effects and Calorimetry
Oct 23	<b>Quiz 8</b> Ch. 7 (cont.)	Oct 25	<b>EXAM 2</b> (Ch. 5-7) <b>Expt 14</b> Heat Effects and Calorimetry (cont.)
Oct 30	Ch. 8 Electrons in Atoms	Nov 1	Ch. 8 (cont.) <b>Expt 11</b> The Atomic Spectrum of Hydrogen
Nov 6	<b>Quiz 9</b> Ch. 9 The Periodic Table	Nov 8	Ch. 10 Chemical Bonding I
Nov 13	<b>Quiz 10</b> Ch. 11 Chemical Bonding II	Nov 15	<b>Expt 13</b> The Geometrical Structure of Molecules
Nov 20	<b>Quiz 11</b> Ch. 12 Intermolecular Forces: Liquids and Solids	Nov 22	<b>THANSGIVING DAY (NO CLASSES)</b>
Nov 27	<b>Quiz 12</b> Ch. 13 Solutions and Their Physical Properties	Nov 29	<b>Expt 19</b> Molar Mass Determination by Depression of Freezing Point
Dec 4	<b>EXAM 3</b> (Ch. 8-13)	Dec 6	<b>FINAL EXAM</b> <b>Lab clean-up and check-out</b>

## Methods of Instruction:

Lecture: Students are expected to have read the appropriate sections in the textbook before coming to class. Check the topic outline for guidance. Take advantage of the resources available in [MasteringChemistry](#) to supplement your preparation for each lecture.

Laboratory Activities: (See instructions for the laboratory in succeeding pages)

Group Exercises/Chem Activities: Guided inquiry learning activities, some chapter exercises

Class Demonstrations: Live demonstrations of chemical and physical processes may be done during both the lecture and lab; students are expected to record these and their observations

Video clips: Certain laboratory techniques, hazardous reactions, and processes may be shown through short video clips.

Online Activities: Discussions, especially among group members, outside of class through Blackboard Discussion Board or other electronic means agreed upon by the group is encouraged.

## Methods of Assessment:

Pre- and Post- tests: Standardized tests used by the American Chemical Society will be administered separately or together with scheduled examinations.

Laboratory experiments and reports – due one week after each experiment is completed or as instructed

Online Homework: We will use MasteringChemistry, an online homework management system. Visit the website <http://www.masteringchemistry.com/site/index.html> or print out the handout from Blackboard to access registration instructions. *Calibrated Peer Review* or *Turnitin* assignments may be used as homework management tool for writing assignments in this course.

In-class discussions, seatwork, and guided inquiry exercises

Exams/Quizzes: There are three long examinations and a comprehensive final examination. A quiz will be given at least once a week. Quizzes will be based on previously covered material, including labs.

Students Assessment of Their Learning Gains (SALG) surveys may be administered at the beginning and end of the term.

## Method of evaluation of student performance:

**Grading: Students must pass BOTH the lecture and laboratory portions to pass the entire course.**

Final course grades will be based on the following:

Lab	20%	90 – above	A
Online homework	10%	80 – 89	B
Quizzes	25%	70 – 79	C
Long Exams	20%	50 – 69	D
Final Exam	20%	below 50	F
Class Participation	5%		
<b>Total</b>	<b>100%</b>		

**Lab:** See instructions in succeeding pages. *Calibrated Peer Review* or *Turnitin* may be used for submission of your lab report abstracts. assignments may be used as homework management tool for writing assignments in this course.

**Homework:** We will use MasteringChemistry, an online homework management system. Visit the website <http://www.masteringchemistry.com/site/index.html> or print out the handout from Blackboard to access registration instructions. Since problem solving plays a very important part in learning chemistry, it is highly recommended that students work out as many problems as possible, especially the exercises at the end of each chapter and the assignments in [MasteringChemistry](#).

**Exams/Quizzes:** There are three long examinations and a comprehensive final examination. A quiz will be given at least once a week. Quizzes will be based on previously covered material, including labs. Only the highest ten quiz scores will be included in calculating the final grade. The final exam is comprehensive.

**Class Participation:** Student participation in class and group discussion/activities, including completed problem-solving exercises, will determine the class participation score.

Grade	Criteria
5	<ul style="list-style-type: none"> <li>- Always attentive and respectful to classmates and instructor</li> <li>- Frequently contributes relevant and constructive comments that move the discussion forward; shows clear evidence of deep analytical and critical thought</li> <li>- Interacts with classmates actively by thoughtfully responding to their comments, always thinking through own or other's ideas, and always offering questions/comments that keep the focus on the material and advance the conversation</li> <li>- Always comes to class promptly, fully prepared, and never misses a deadline</li> </ul>
4	<ul style="list-style-type: none"> <li>- Always attentive and respectful to classmates and instructor</li> <li>- Contributes relevant comments that usually move the discussion forward</li> <li>- Shows sincere effort to interact with classmates by responding to their comments; regularly thinks through own or other's ideas and usually offers constructive questions/comments</li> <li>- Comes to class promptly, fully prepared, and very rarely misses a deadline</li> </ul>
3	<ul style="list-style-type: none"> <li>- Shows evidence of attentiveness in class</li> <li>- When prepared, contributes relevant comments that sometimes move the discussion forward but at other times don't; shows some evidence of analytical thought</li> <li>- Interacts with classmates by responding to their comments; sometimes thinks through own or other's ideas and offers others constructive questions/comments</li> <li>- Often comes to class prepared but sometimes has superficial preparation</li> </ul>
2	<ul style="list-style-type: none"> <li>- Sometimes disinterested in class</li> <li>- Gives occasional comments but shows little evidence of analytical or critical thought</li> <li>- Interacts with classmates but rarely advances conversation; shows little evidence of ability to think through own or others' ideas</li> <li>- Sometimes comes to class prepared or frequently has superficial preparation</li> </ul>
1	<ul style="list-style-type: none"> <li>- Frequently disinterested in class or rarely comes to class prepared</li> <li>- Rarely participates and, in such times, often gives vague comments that show little understanding of the material</li> <li>- Seldom interacts with classmates</li> </ul>
0	<ul style="list-style-type: none"> <li>- Frequently absent, unprepared, or disinterested in class</li> <li>- Does not respond when called upon</li> <li>- Does not interact with classmate or participation is disruptive and negatively impacts group dynamics</li> </ul>

## Laboratory Information for Chemistry 201 – General Chemistry I

### INSTRUCTIONS for the Laboratory:

1. You must do your laboratory work at the time assigned for your section. Attendance will be taken. Study the experiment carefully before coming to class so that you don't waste time going through the procedure during the lab. **NO MAKE UP LABS.**
2. You must complete and submit the **Advance Study Assignment** for each experiment at the beginning of the lab period before you will be permitted to start the experiment. The average score for the Advance Study Assignments will be equivalent to one lab experiment and will not be dropped.
3. You must do your own work unless you are told to work in pairs for an experiment. If you need guidance, let the instructor know.
4. **RECORD ALL DATA IN INK IN YOUR LAB DATA SHEET WHILE YOU WORK.** Do not write data, even temporarily, on scraps or other pieces of paper. Make sure your data is complete. **Do not forget your name or the unknown number**, if applicable. Pay attention to significant figures and units. If you make a mistake, delete entries by crossing them out neatly with a single line. Do not erase or "white out" mistakes. **BEFORE LEAVING THE LABORATORY, HAVE THE LABORATORY INSTRUCTOR SIGN YOUR REPORT SHEET.**
5. Children are not allowed in the lab.
6. No eating, drinking, or smoking in the lab.
7. **ALWAYS WEAR YOUR SAFETY GLASSES.** Failure to wear your safety glasses will lead to dismissal from lab and a lowered grade for that experiment.
8. **WEAR SENSIBLE CLOTHING** as discussed during the safety lectures. If you wear shorts, sandals, or other clothing that is not consistent with safety, you will not be admitted to the laboratory. Wear a lab apron if you have one.
9. Do not take reagent bottles to your laboratory work area. Use test tubes, beakers, or paper to obtain chemicals from the dispensing area. Take small quantities of reagents. You can always get more if you run short.
10. Check carefully the label on each reagent bottle to be sure you have the correct reagent. The names of many substances appear similar at first glance.
11. To avoid possible contamination, never return unused chemicals to the reagent bottles.
12. Do not insert medicine droppers into reagent bottles. Instead pour a little of liquid into a small beaker.
13. Be neat in your work; if you spill something, clean it up immediately.
14. Wash your hands anytime you get chemicals on them and at the end of the laboratory period.
15. After completing the experiment, clean and put away your glassware and equipment. Clean your work area and make sure the gas and water are turned off. A clean lab is a safe lab.
16. Dispose solid waste such as filter paper, litmus paper, and matches in the wastebasket, not in the sink. Dispose broken glass in the broken glass waste boxes. Dispose all other solid chemicals as directed by your instructor. Pour all the toxic liquids into the waste bottles provided or as directed by instructor.

17. Keep the mass balances and the area around them clean. Follow the directions given by the instructor on the proper weighing technique to use. Otherwise, do not place chemicals directly on the balance pans; place a piece of weighing paper or a small container on the pan first, and then weigh your material. Never weigh an object while it is hot.
18. Do not heat graduate cylinders, burets, pipets, or bottles with a burner flame.
19. Do not look down into the open end of a test tube in which the contents are being heated or in which a reaction is being conducted.
20. Do not perform unauthorized experiments.

### LAB REPORTS:

1. Each pair or group should submit lab reports for selected experiments. This should include the following:
  - **General information:** This is your cover page and should include your name(s), course # and section, the title of the experiment, the date it was performed, and the date of submission
  - **Abstract or Summary:** A brief, third person point of view narrative of the experiment, including the lab activity's objectives: "what you did, how you tried to do it, and what you got at the end."
  - **Data and Results:** This is your group data sheet with instructor's initials, which includes tabulated data and results, calculations, and graphs
  - **Answers to Questions:** This includes the answers to post lab questions.
2. Write up the Data and Results section of the report on the Data Sheet provided in the laboratory manual and answer all Post Laboratory Questions posted unless instructed otherwise. Use additional paper if necessary.
3. Your report must be clear, concise, and complete. Use a word processor for all text. Chemical equations and calculations may be handwritten. The pages must be stapled together.
4. Hand in your lab report for grading to your lab instructor one week after you finish the experiment. A 20% deduction will be assessed a report not handed in on time up to one week after the due date. **Reports submitted more than one week late will not be accepted.** You will be assessed a 50% deduction if you actually did the lab but failed to turn in your report.
5. Each lab is worth 20 points. The average of the Advanced Study Assignments is equivalent to one lab experiment score. The lowest lab score (except for the average of the Advanced Study Assignments) will be dropped.

### Other CCC and Course Policies:

**All pagers and cellular phones must be turned off or put on the silent mode and put away during lecture and laboratory sessions.** No CD/MP3/tape/music/iPod/iPhone/iPad are allowed to be operated while class is in session.

Correspondences with the Instructor: FERPA (Family Educational Rights and Privacy Act) is a federal law that protects the privacy of student educational records. See the following webpage: [www.ed.gov/policy/gen/guid/fpco/ferpa/index.html](http://www.ed.gov/policy/gen/guid/fpco/ferpa/index.html). Faculty cannot reveal information about students, or

discuss student records over the phone or unsecured e-mail. CCC student e-mail meets FERPA requirements and must be used when communicating with the instructor after hours.

“No Show” Withdrawal (NSW) Policy: If a student registered for a course that meets only once a week before the start time of the first class period, but did not attend the first class and failed to notify the instructor of his or her intentions to continue the class, the student will be withdrawn from the course by the instructor and issued an NSW (*Student Policy Manual*, p. 25)

<http://www.ccc.edu/departments/Documents/studentpolicymanual.pdf>.

Student-Initiated Withdrawal (WTH): It is the student’s responsibility to officially withdraw from courses by **Nov. 12, 2012**. Failure to withdraw may result in mandatory payment of tuition/fees, forfeiture of financial aid eligibility, and/or a failing grade (*Student Policy Manual*, p. 26)

<http://www.ccc.edu/departments/Documents/studentpolicymanual.pdf>.

Academic Integrity: The City Colleges of Chicago is committed to the ideals of truth and honesty. In view of this commitment, students are expected to adhere to high standards of honesty in their academic endeavor. Academic dishonesty of any kind are serious violations of these standards and will result, minimally, in the grade of “F” by the instructor (*Student Policy Manual*, p. 40)

<http://www.ccc.edu/departments/Documents/studentpolicymanual.pdf>. It includes but is not limited to the following: cheating, complicity, fabrication and falsification, forgery, and plagiarism. Cheating involves copying another student’s paper, exam, quiz or use of electronic devices to exchange information during class time and/or testing. It also involves the unauthorized use of notes, calculators, and other devices or study aids. In addition, it also includes the unauthorized collaboration on academic work of any sort. Complicity, on the other hand, involves the attempt to assist another student to commit an act of academic dishonesty. Fabrication and falsification, respectively, involve the invention and alteration of any information (data, results, sources, identity, and so forth) in academic work. Another example of academic dishonesty is forgery, which involves the duplication of a signature in order to represent it as authentic. Knowing why, when and how to cite sources in your reports is vital. By using sources appropriately, you participate in the scholarly community as you relate your ideas and experiences to those of others. When citations are lacking or incorrect, you weaken your paper by failing to clearly make those connections. Plagiarism involves the failure to acknowledge those sources (of ideas, facts, charges, illustrations and so forth) properly in academic work, thus falsely representing another’s ideas as your own.

Student Conduct: City Colleges of Chicago students are expected to conduct themselves in a manner that is considerate of the rights of others and does not impede the educational mission of the College. Misconduct for which students are subject to College discipline (e.g. expulsion) may include the following: (1) all forms of dishonesty, such as stealing or forgery; (2) obstruction or disruption of teaching, research, administration, or disciplinary proceedings; (3) physical or verbal abuse, threats, intimidation, harassment, and/or other conduct that threatens or endangers the health or safety of any person; and (4) carrying or possession of weapons, ammunition, or other explosives (*Student Policy Manual*, p. 41). <http://www.ccc.edu/departments/Documents/studentpolicymanual.pdf>

Active Pursuit of the Course and Administrative Withdrawals (ADW): A student may be given an ADW at midterm if, in the instructor’s opinion, the student is not actively pursuing course requirements, including attendance and submission of all course work. In line with this policy, you will be dropped from the roster (i.e., given a grade of ADW) at midterm if up to that point at least two of the following apply:

1. Less than 70% of the assigned homework have been completed
2. Less than 70% of the scheduled labs and reports have been done and submitted
3. Less than 70% of the administered quizzes have been attempted
4. Less than 70% of the class sessions have been attended



## Academic Support Services:

**Tutoring Center.** For students who need help with their assignments: Student Service Building, Suite 177, 773-907-4785. <http://www.ccc.edu/colleges/truman/departments/Pages/Tutoring.aspx>

**Student Success and Leadership Institute (SSLI).** For students who need various other support services to achieve their educational goals: 773-907-4714, <http://www.ccc.edu/colleges/truman/departments/Pages/Student-Success-and-Leadership-Institute.aspx>.

**TRIO Student Support Services.** For low-income students, first generation college students, or students with disabilities who need academic support: Student Service Building, Suite 177, 773-907-4797. Registration is required at the start of each semester. <http://www.ccc.edu/colleges/truman/departments/Pages/TRiO-Student-Support-Services.aspx>

**Disability Access Center.** The Center verifies needs pursuant to the American Disabilities Act (ADA). It determines student academic accommodations, and issues accommodation letters. Registration is required at the start of each semester. Student Service Building, Room 165, 773-907-4725

Your success in this class is important to us. If you have any concern about participating or accomplishing the required course work because of a disability or medical condition, please contact us and the Disability Access Center as soon as possible. The center at Truman College was created to meet the needs of students with disabilities. The short-term goal is to help you develop learning techniques that ensure your success at Truman College. Long-term, Disability Access Center services are designed to help you make the transition from college to work. Students must obtain written permission from this office before any specific accommodations for disabilities are afforded.

<http://www.ccc.edu/colleges/truman/departments/Pages/Disability-Access-Center.aspx#>

### Wellness Center Services.

- Personal, individual counseling offers a safe place to talk and to get support to work through life's challenges
- Support groups address key topics important to college students. Upcoming groups include – stress management, international student support group, men's group, and academic coaching
- Stress and time management coaching helps students develop a plan to manage stress and organize day-to-day life
- Referrals to community resources connect students to basic needs such as low-cost child care, emergency housing, medical services, and groceries
- Special support for victims of relationship violence and sexual assault includes one-on-one counseling; safety planning; and referrals to medical care, legal services, and emergency child care

The Wellness Center is currently located in McKeon Building, Room 162, but will be moving soon to the main building to be more accessible and provide a more confidential space. Current office hours are M-Th 9:00 AM – 5:00 PM; F 9:00 AM – 12:00 PM; later appointments available until 7:00 PM at least two evenings each week. Contact 773-907-4786 for an appointment or more information.