



**Survey of Chemistry I CHEM 1151-054**  
**Time: Saturday 9:00- 11:45 AM, Location: NE-0300**  
**Georgia State University Dunwoody Campus**  
*The course syllabus provides a general plan for the course;  
deviations may be necessary.*

**INSTRUCTOR INFORMATION:**

**Instructor:** Stephen (Steve) Rudy

**Email:** All email correspondence via iCollege (it is secure, documented and time stamped).

**Office Hours:** 8:00 AM Saturdays NE-0300

**Course ID:** CRN: 86935

**GENERAL DESCRIPTION:**

**Survey of Chemistry I (CHEM 1151):** This is the first course of a two semester sequence in college chemistry for allied health sciences majors and non-science majors. Chapters 1 – 9 of the e-text will be facilitated and assessed by a passionate instructor.

**CO-REQUISITE:** CHEM 1151L. Students with special medical conditions (pregnancy, nursing, immune deficiencies, etc.) who have documentation from their (licensed) physician may request a waiver for lab until a later date. Students must present this documentation to the department chair at the time of the request.

**COURSE OBJECTIVES:**

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

1. Use the metric units and appropriate prefixes for mass, length, volume, temperature, density specific gravity and calories, and convert between one unit and another, including English units.
2. Describe the subatomic particle composition of an atom and interpret atomic number and mass number, including isotopes; describe the electron distribution in the orbitals of an atom.
3. Use the periodic table as a tool to predict trends in chemical behavior, such as atomic radius, ionization energy, bonding.
4. Predict the bond type, draw the Lewis dot structure, determine the polarity and geometry of the molecules using VSEPR theory, determine the relationship between polarity and physical properties of compounds, and write the formula and name of a compound.
5. Balance chemical equations, solve simple stoichiometry problems, identify energy changes that accompany a reaction, and classify types of chemical reactions.
6. Use Kinetic Molecular Theory to explain disruptive forces (kinetic energy) and cohesive forces (intermolecular forces) of molecules/particles in relation to the three states of matter, and perform calculations using the Ideal Gas Law and Dalton's Law.
7. Describe solutions and colloids in qualitative terms and perform calculations related to concentration, dilution, and colligative properties.
8. State factors affecting rates of chemical reactions, interpret energy diagrams, use collision theory to explain rates of reactions, write and interpret the equilibrium constant

expression for a given chemical reaction, and use Le Chatelier's Principle to predict shifts in equilibrium.

9. Calculate pH given the hydronium ion or hydroxide ion concentration and the hydronium ion concentration from pH. State the role of buffers and their mechanism in maintaining pH, write the conjugate acid base pairs, relate acid or base strength, calculate pK<sub>a</sub> and relate it to the strength of an acid, and perform calculations on an acid-base titration.

10. State the different types of radiation and describe how radiation is harmful to living tissue; describe the use of radioactive isotopes in medicine.

11. Demonstrate increased knowledge of the scientific process and scientific principles; and *apply* them along with critical thought, to observations they make and information they receive.

### **REQUIRED MATERIALS:**

1. **Textbook:** A digital textbook authored by Perimeter College Faculty members is available at [www.chemistrylearningbydoing.org](http://www.chemistrylearningbydoing.org). Students need to complete the consent and a questionnaire form in order to participate.

2. **Internet Access:** Assignments will be identified in iCollege.

3. **Scientific, Non-programmable Calculator** (The TI-30XI series is useful.)

4. **Notebook** to keep homework in order.

5. **Optional Textbook:** *Structures of Life: General, Organic, and Biological Chemistry: Structures of Life 6<sup>th</sup> edition*; Author: Karen C. Timberlake (ISBN-10: 0-134-73068-2)

### **IMPORTANT DATES FOR SPRING 2019:**

First Day of Class: Saturday August 31, 2019

Semester Midpoint: **(Last day to withdraw with "W" grade)** October 15, 2019

Thanksgiving Break: November 24 - December 1, 2019

Last Day of Class: December 7, 2019

Cumulative Final Exam: December 7, 2019

**ACS Exam: December 14, 2019 9:00 AM Room NE0300**

### **POLICY ON CLASS ATTENDANCE:**

Students are expected to attend all lectures in order to gain command of the concepts and materials of their courses of study. All matters related to student absences, including making up work missed, are to be arranged between the student and the instructor before the semester begins or on the first week of classes. All instructors will, at the beginning of each semester, make a clear statement in the course syllabus for each of their classes, describing their policies for handling absences.

*A guideline of 15% is used for determining an excessive level of absence.* Students are obligated to adhere to the requirements of each course and of each instructor. Instructors are encouraged to provide avenues for students to make up examinations and other work missed due to an *excused absence*.

*Prompt arrival, class attendance and homework assignments comprise a total of fifteen percent of final course grade, therefore a student must submit homework and attend class in order to earn an "A" grade.*

*Excused absences* are recognized in the following cases: *University-Sponsored Events, Legal Obligations, Religious Observances, and Class Attendance by Veterans.*

In addition, it is suggested that the faculty give due consideration to absences relating to the following events:

Death or major illness in student's *immediate family*

Illness of a dependent family member

Illness that is too severe or contagious for students to attend class

*Definition Immediate Family* – An immediate family member means spouse, parent, or child in accordance with the definition used for GSU employees.

**Note:** Students are expected to attend all class meetings. There will be no excused absences. ***In the event of absence, it is the responsibility of the student to obtain assignments and information covered during the absence.*** An attendance sheet will be circulated during class. Anyone who does not sign the attendance sheet will be counted absent. Signing the attendance sheet for someone else is *falsifying the official record* and is grounds for dismissal from the class. GSU Attendance Policy information may be found using the following link: [https://codeofconduct.gsu.edu/files/2018/10/2018\\_10\\_2\\_codeOfConduct.pdf](https://codeofconduct.gsu.edu/files/2018/10/2018_10_2_codeOfConduct.pdf)

**Class Absences due to Non-Payment:** Students who are removed from the class for non-payment and are working to get reinstated by paying/setting up a payment plan, are welcome to continue attending lecture class for up to two weeks (2 class days) after removal from the class roll. Students are expected to complete classwork and/or tests as scheduled during that time but they will not be graded until after reinstatement. Instructors are not able to reenroll students in iCollege. Students will be given 5 days after reinstatement to complete all work that was assigned in iCollege without a grading penalty. Students will not be given makeup work for any classes that may be missed during the time of un-enrollment.

**Withdrawal Policy:** Voluntary withdrawals by the student are allowed through midpoint. Note that, depending on the total number of withdrawals on the student's record, this may result in a W or a WF on the student's record. Students are allowed to withdraw with a grade of W a maximum of **three** times in their undergraduate associate level careers at Georgia State; after receiving three W grades, the student will be assigned WF for any withdrawal. **Students are responsible for formally dropping or withdrawing from courses using the online registration system, PAWS at [paws.gsu.edu](http://paws.gsu.edu).** The instructor will not withdraw students from the class. Withdrawal from Chem 1151 lecture automatically requires withdrawal from Chem 1151 laboratory, and likewise a withdrawal from lab will result in withdrawal from lecture. The GSU Withdrawal Policy may be found using the following link: <http://advisement.gsu.edu/self-service/policies/withdrawal-policy/>.

### **CLASS POLICIES:**

1. The student is responsible for all material covered and for taking quizzes/exams by scheduled deadlines, *whether or not it is contained in the textbook.*
2. There will be ample practice problems available that are intended to aid the student in learning the required material.

3. Quizzes: Quizzes will be given throughout the semester in class or in iCollege. Quizzes may be announced or unannounced. **There will be NO make-up quizzes.**

4. Tests: Four multiple choice tests will be given throughout the semester of which the lowest score will be dropped. Students will have 75 mins to take each exam. Students are responsible for providing Scantrons and #2 pencils. **ONLY NONPROGRAMMABLE CALCULATORS WILL BE ALLOWED. There will be NO make-up tests.** Phone use is not allowed during tests. Students may not share calculators.

5. Final Exam: The final exam for this course **will be cumulative** and will consist of multiple choice questions. Students will be responsible for providing Scantrons, and #2 pencils. **ONLY NONPROGRAMMABLE CALCULATORS WILL BE ALLOWED.**

6. Cheating: Cheating will not be tolerated. If a student is suspected of cheating, they will be reported to the dean for disciplinary action.

7. If you have a question, please ask. Your instructor wants the opportunity to explain.

**GRADING SCHEME:** <https://faculty.gsu.edu/faculty-handbook/#403.01>

	Points	% of Grade
Exams (100 points each, best 3 of 4)	300	55
In-class quizzes	25	5
Homework	85	15
Final ACS Exam	140	25
Total	550	

A	B	C	D	F
90-100 %	80-89 %	70-79 %	60-69 %	Less than 60 %

**Unit Exams** (300 points): There will be four face-to-face unit exams administered from 9:00 until 10:15 AM. Prompt arrival will afford the maximum amount of time to take the test. Bring Green Scantrons, a non-programmable calculator, and a No. 2 pencil. Computers, cell phones, computerized dictionaries, programmable calculators, or molecular models are not allowed during quizzes, tests, or the final ACS exam. If a student must miss a test, contact the instructor in advance to attempt to make arrangements to take the test in advance. Questions regarding test scores must be posed within three (3) business days after the grade is issued.

**Homework** (85 points): Homework consists of the end of chapter questions in the ebook. Homework will be due as indicated to receive maximum credit. Partial credit may be earned depending on how late the homework is submitted.

**In-Class Quizzes** (25 points): The five best grades of six short quizzes will contribute towards the final grade. Quizzes may be administered at any time during the class period. Quizzes cannot be made up.

**Final Exam** (150 points): A 60 question, 55 minute comprehensive multiple choice exam is provided by the American Chemical Society (ACS) and administered nationally (**at 9:00 AM on May 4<sup>th</sup>, 2018 in room NE0320** for this course.)

**Extra Credit:** No extra credit is scheduled for this course.

**Preparation:** *Students are responsible* for class preparation and for any material presented in the course of the lectures *whether or not it is contained in the textbook*. Chemistry 1151 is a highly structured course with each new topic based on previous topics discussed. This course covers about one chapter every week and it is common for successful students to concentrate, read, and work out practice problems for about 12-15 hours per week outside of lecture time (with a 20 : 80 ratio, of reading : problem solving time). Work out many problems, work in groups and attend office hours.

**In Class:** *Please do not use computers in class* for slides, notes or eText. The screens disrupt and distract other students. Please *silence and stow cell phones during class*. Breaks will be provided where students can take or return calls. A pen, notebook and a calculator are the most effective classroom accessories. Class notes will be made available before class and throughout the semester in iCollege. It's best to *focus* attention *on the presentation* and *ask questions* before we move on.

**Students are strongly encouraged to:**

**Review** previous material, especially if it's not perfectly understood.

**Complete reading assignments** before the new lecture is presented.

**Complete the study checks** in the textbook.

**Master concepts and principals** that will enable you to apply them in the future.

**COURSE OUTLINE:** The course syllabus provides a general plan for the course; deviations may be necessary.

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	AM	PM	Lab
August	25	26 Classes Begin	27	28	29	30	31 Syllabus, Chapter 1 Math Chemistry			Safety
September	1	2	3	4	5	6	7 Chapter 1 Matter & Measurement			Math Data Collection and Graphing
	8	9	10	11	12	13 Chapter 1 Homework Due	14 Test 1 Chapter 2 P.T. Atoms & Energy			Lab Equipment and Techniques
	15	16	17	18	19	20	21 Chapter 4 Bonding			Determination of Density
	22	23	24	25	26	27 Chapter 2 & 4 Homework Due	28 Test 24 Chapter 5 Reactions & Stoichiometry			Introduction to Ionic Compounds
October	29	30	1	2	3	4	5 Chapter 5 Reactions & Stoichiometry			Testing Ionic Compounds
	6	7	8	9	10	11 Chapter 5 Homework Due	12 Midterm 1245 Chapter 7 Solutions			Midterm VSEPR (electronic and molecular
	13	14	15 Midpoint	16	17	18	19 Chapter 7 & 8 Reaction Rates & Equilibrium			Preparation of Viscous Solutions
	20	21	22	23	24	25	26 Test 7 Chapter 8			Introduction to Classes of Chemical Reactions
November	27	28	29	30	31	1 Chapter 7 & 8 Homework Due	2 Chapter 9 Acid Base			Preparation and Analysis of Aqueous Solutions
	3	4	5	6	7	8	9 Test 8 Chapter 9 Acid Base			Introduction to Chemical Kinetics
	10	11	12	13	14	15	16 Chapter 6 Gas Laws			Titration of Acid. Formal, Typed Lab Report
	17	18	19	20	21	22 Chapter 9 & 6 Homework Due	23 Test 96 Chapter 3 Nuclear Chem			Investigation of Acid-Base Properties
	24	25 T H A N K S	26 G I V I N G	27 W E E K	28	29	30			
December	1	2	3	4	5	6 Chapter 3 Homework Due	7 Cumulative Test 123456789			Lab Final Exam
	8	9 Classes End	10	11	12	13	14 American Chemical Society Exam			

## **GEORGIA STATE UNIVERSITY DUNWOODY CAMPUS POLICIES:**

**Affirmative Action Statement:** *Georgia Perimeter College adheres to affirmative action policies designed to promote diversity and equal opportunity for all faculty and students.*

**Americans with Disabilities Act Statement:** Students who wish to request accommodation for a disability may do so by *registering with the Office of Disability Services*. Students may only be accommodated upon *issuance of a signed Accommodation Plan issued by the Office* and are responsible for providing a copy of that plan to the instructor of all classes in which accommodations are sought. A CDS Counselor will coordinate those services (for Decatur campus the telephone number is 678-891-2440).

**Campus Carry:** Please refer to the USG website [www.usg.edu/hb280](http://www.usg.edu/hb280)

**Course Assessment:** Your constructive assessment of this course plays an indispensable role in shaping education at Georgia State. Upon completing the course, please take time to fill out the online course evaluation.

**Chemistry Department Policy on Student Conduct and Integrity:** The Georgia State University Policy on Academic Honesty is in force in the course. This includes, but is not limited to, infractions in the area of plagiarism, cheating on examinations, unauthorized collaborations, falsification, and multiple submissions. This policy is published in the Student Handbook.

All examinations must represent your individual effort, with no unauthorized aid. To either give or receive unauthorized information during an examination is cheating, as is the use of any unauthorized supplementary material.

All laboratory work associated with this course must represent your individual work. Only the data obtained in your individual laboratory experiment is permitted to be used except when expressly authorized by the instructor. Data from supplementary sources, handbooks, reference literature, etc., must be referenced (title, author, volume, page(s), etc.). Falsification or destruction of data constitutes cheating as well.

**Classroom Conduct:** Students are expected to act with respect towards other students and the instructor. The instructor is charged with creating and supportive learning environment. Rude or disruptive behavior is not allowed. If a student's behavior is deemed inappropriate, they may be asked to leave the class or lab. Some disruptive behaviors include:

Conducting private conversations in the class during lecture or discussion.

Inattentiveness during lecture or discussion.

Late arrival, early departure or excessive wandering.

Incoming calls and texting. (Phones should be silenced and stowed during class.)



**Disruptive Behavior:** Disruptive behavior is student behavior in a classroom or other learning environment...which disrupts the educational process...*is defined by the instructor.*

<http://www2.gsu.edu/~wwwsen/minutes/2006-2007/disrpt.pdf>

**Drop for Non-Attendance:** *Students who never attend a class* (or never “log-in” for a distance learning class) by one week after the end of drop add *will be reported for non-attendance.*

Students who do not drop a class during the schedule adjustment period and are reported for non-attendance will be automatically dropped from the course. Neither the course(s) nor any grade(s) will appear on the student’s permanent record. Students reported for non-attendance in a required Learning Support, English as a Second Language, or Regent’s Test Preparation course will be withdrawn from all collegiate level (1000 or 2000-level) courses in which that student is concurrently enrolled. Students dropped from a lecture with a co-requisite lab will be withdrawn from the lab and given a grade of W.

**Flu Policy:** In compliance with CDC recommendations, *students should NOT come to campus or attend class while ill with influenza.* The illness and self-isolation period will usually be about a week. Students with the flu do not need to provide a physician’s certification of illness but *are required to inform their instructor by submitting the GPC Illness Notification Form as soon as possible that they are absent because of the flu or flu-like symptoms:*

<http://www.gpc.edu/absence> .

In addition to the Illness Notification Form, it is strongly encouraged that the student *directly emails the instructor* of his/her illness. Once email is received, the instructor may email notes/handouts which include suggested problems to the student to enable him/her to remain current in the course. As stated above, *no make-up quizzes or tests will be given.* However, if the missed test/quiz greatly affects the student’s grade, the instructor may give additional assignments in place of the test/quiz.

In the event that this course is no longer able to meet face-to-face for a period of time because of a wide-spread health emergency, *students should continue to stay current with our schedule as posted in this syllabus. During this time, students will be responsible for the material posted in iCollege, material in the textbook and material scheduled in the ebook.* For additional resources, see the following link: <http://www.gpc.edu/library/index.htm>.

**Grade of “Incomplete”:** An incomplete (“I” grade) is available only in the event that the course has been essentially completed. *If the student misses the final exam due to injury, illness or other special circumstances, he/she may request an “I” grade.* Documentation will be required confirming the illness or difficulty. **The “I” grade must be made up within one semester or** the “I” grade automatically reverts to an “F”. Note that the student may receive an “I” grade only if he/she is passing the course.



**Inclement Weather Policy:** *In the event that inclement weather strikes the Atlanta metro area, students are expected to tune into WSB radio (750 AM, 95.5 FM) or WSB television (Channel 2) to determine if GPC has closed or not. If the school is open, class will meet as regularly scheduled. If an exam is scheduled on a day that the college is closed, students should come to the next class meeting prepared to take the exam that was scheduled for the cancelled day.*

**Learning and Tutoring Center:** *The Learning and Tutoring Center (LTC) offers free individual tutoring on a drop-in basis.* Tutoring is available in a wide variety of collegiate courses as well as in learning Support courses. Professional, degreed personnel conduct tutoring.

**Multiple Campuses Statement:** Students taking lecture and lab at different campuses should be aware that, while the content is the same, the order of topics may be different. *Students are responsible for covering the material as required by each instructor.*

**Request for Offsite Proctoring of Final Exam:** *Students requesting to take his/her final exam at an alternative offsite location must complete the offsite proctor agreement and have it submitted to the Online Testing Center before midterm.* Any requests received after this day will not be accepted. A student should complete a distinct form for each course he/she is requesting to take the final exam at an alternative location.

**Religious Accommodation:** GSU is committed to respecting the religious beliefs and practices of all members of the community and making accommodations for observances of special significance to adherents. Students' *sincerely held religious beliefs shall be reasonably accommodated* with respect to scheduling and other academic requirements of this course. Students requesting academic accommodations due to religious beliefs, *must notify the instructor* of such requests in writing or by email *by the end of the second full week of classes.* If a student fails to notify an instructor accordingly, then there is no obligation on the part of the Chemistry Department or its staff to accommodate the student in any manner.

**Statement of Nondiscrimination:** Georgia Perimeter College supports the Civil Rights Act of 1964, Executive Order #11246, Title IX of the Educational Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act. *No person shall, on the basis of age, race, religion, color, gender, sexual orientation, national origin or disability, be excluded from participation in, or be denied the benefits of, or be subjected to discrimination under any program or activity of the college.* Any individual with a grievance related to the enforcement of any of the above provisions should contact the Assistant Director of Human Resources.

**Title IX Statement:** GSU seeks to provide an environment that is free of bias, discrimination, and harassment. *If you have been the victim of sexual harassment / misconduct / assault, we encourage you to report this. If you report this to a faculty member, he or she must notify one of our college's Assistant Title IX Coordinators / Student Deans about the basic facts of the incident (you may choose whether you or anyone involved is identified by name). For more information see <http://depts.gpc.edu/gpcmiscconduct/index.html>.*

**Tobacco and Smoke-Free Policy:** Effective October 1, 2014, *Georgia Perimeter prohibits the use of tobacco products* on any property owned, leased, or controlled by GPC. All faculty, staff, students, visitors, vendors, contractors, and all others are prohibited from using any tobacco products while on GPC property. "Tobacco Products" is defined as cigarettes, pipes, cigars, all forms of smokeless tobacco, clove cigarettes and other smoking devices that use tobacco such as hookahs or simulate the use of tobacco such as electronic cigarettes. Violations of the smoking policy will be handled under the GPC Student Code of Conduct.

**Veterans and Serving Military:** *GPC honors its military and veteran men and women* returning to pursue their educational goals. *A Military Outreach Center is provided for them on the ground floor of Building H on the Clarkston Campus.* Veterans, serving military, their dependents, and the survivors of serving military who are attending college are encouraged to avail themselves of a full range of college services and activities through the MOC. MOC resource tables are also located on all campuses to provide them with valuable information. The Center maintains a Military Outreach website at <http://depts.gpc.edu/militaryoutreach/> and their telephone number is 678-891-3025.

**Withdrawal Policy:** *A grade of "W" will be assigned if the student officially withdraws by midpoint.* After midpoint, withdrawal will result in an F grade unless a hardship withdrawal is granted by the Campus Academic Dean. **It is the student's full responsibility to withdraw through the Office of Enrollment and Registration Services if the need arises.** *Withdrawal from CHEM 1151 lecture automatically requires withdrawal from CHEM 1151 laboratory,* and likewise a withdrawal from lab will result in withdrawal from lecture.