



INSTRUCTIONAL PACKAGE

CHM 111
College Chemistry II

Effective Term
Fall 2024/Spring 2025/Summer 2025

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Part I: Course Information

Effective Term: Fall 2024/Spring 2025/Summer 2025

COURSE PREFIX: CHM 111

COURSE TITLE: College Chemistry II

CONTACT HOURS: 3-3

CREDIT HOURS: 4

RATIONALE FOR THE COURSE:

Completion of CHM 111 enables the student to gain an appreciation and working knowledge of fundamental principles in the area of general chemistry, building on concepts learned in College Chemistry I (CHM 110). These concepts are approached through the development of problem-solving skills, which helps prepare students for future careers in science fields. Additionally, this course is designed to satisfy freshman-level chemistry requirements at other colleges.

COURSE DESCRIPTION:

(For students continuing in chemistry) this course is a continuation of the study of atomic and molecular structure, nomenclature and equations, properties, reactions and states of matter, stoichiometry, gas laws, solutions, and equilibria. Other topics included are kinetics, thermodynamics, and electrochemistry. This course is transferable to public senior institutions as part of the South Carolina Commission on Higher Education Statewide Articulation Agreement.

PREREQUISITES/CO-REQUISITES:

(Credit level [CHM 110](#) Minimum Grade of C or Credit level [CHM 110](#) Minimum Grade of TC)

***Online/Hybrid** courses require students to complete the [Distance Learning Orientation Video](#) prior to enrolling in an online course.

REQUIRED MATERIALS:

Please visit the [BOOKSTORE](#) online site for most current textbook information.

Enter the semester, course prefix, number and section when prompted and you will be linked to the correct textbook.

ADDITIONAL REQUIREMENTS:

A scientific calculator will be needed for in-class use and for tests.

Laboratory safety glasses will be provided, but students may bring their own pair if desired. For Hybrid/Online Students Only: Each student will be required to view an orientation PowerPoint presentation during the first week of class. This presentation can be found on the course homepage in D2L under News. After viewing the presentation, all online students must complete the orientation quiz, which can be found under the dropdown assignment menu. A student will not be considered officially enrolled in the course until the presentation has been viewed and the quiz completed with a 100% score. Any submitted work from the student including discussion posts, assignments, etc. will not be given a grade until the presentation has been viewed and the quiz has been submitted. Failure to view the presentation and take the quiz before midnight on the last day to add/drop classes will result in the student being automatically dropped from the course.

TECHNICAL REQUIREMENTS:

Access to Desire2Learn (D2L), HGTC's learning management system (LMS) used for course materials.
Access to myHGTC portal for student self-services.
College email access – this is the college's primary official form of communication.

STUDENT IDENTIFICATION VERIFICATION:

Students enrolled in online courses will be required to participate in a minimum of one (1) proctored assignment and/or one (1) virtual event to support student identification verification. Please refer to your Instructor Information Sheet for information regarding this requirement.

CLASSROOM ETIQUETTE:

As a matter of courtesy to other students and your professor, please turn off cell phones and other communication/entertainment devices before class begins. If you are monitoring for an emergency, please notify your professor prior to class and switch cell phone ringers to vibrate.

NETIQUETTE: is the term commonly used to refer to conventions adopted by Internet users on the web, mailing lists, public forums, and in live chat focused on online communications etiquette. For more information regarding Netiquette expectations for distance learning courses, please visit [Online Netiquette](#).

ACADEMIC DISHONESTY:

All forms of academic dishonesty, as outlined in the Student Code in the HGTC catalog, will NOT be tolerated and will result in disciplinary action. Anyone caught cheating (Defined in the code as: "a. Copying from another student's test or answer sheet. b. Using materials or equipment during a test not authorized by the person giving the test. c. Collaborating with any other person during a test without permission. d. Knowingly obtaining, using, buying, selling, transporting, or soliciting in whole or in part the contents of a test prior to its administration. e. Bribing or coercing any other person to obtain tests or information about tests. f. Substituting for another student or permitting any other person to substitute for oneself. g. Cooperating or aiding in any of the above.") or committing plagiarism (Defined in the code as: "(1) the appropriation of any other person's work and the unacknowledged incorporation of that work in one's own work or (2) submitting content for academic purposes that are created by artificial

intelligence, technology platforms, or writing services and representing that such content is the person's own work product.") will be given a grade of a zero for that assignment and reported to the Senior VP of Academic Affairs, in accordance with the student handbook. A second offense will result in the student being withdrawn from the course with a W or WF at the professor's discretion and charges being filed with the Chief Student Services Officer.

Part II: Student Learning Outcomes

COURSE LEARNING OUTCOMES and ASSESSMENTS*:

A student will demonstrate an understanding of the gaseous state of matter by:

- contrasting the differences between gases and other physical states on a molecular level.
- explaining how gas pressure can be measured using a manometer or barometer.
- relating mathematically between the units of torr and atmospheres for expressing the pressure exerted by a gas.
- utilizing Boyle's Law to solve problems involving the pressure-volume relationship of gases.
- utilizing Charles's Law to solve problems involving the temperature-volume relationship of gases.
- explaining Avogadro's Law of Gases.
- solving calculations using the Ideal Gas Law.
- utilizing the Ideal Gas Law to calculate molar masses of compounds.
- explaining gas behavior using Kinetic-Molecular Theory.
- explaining the origins of deviations from ideal behavior of gases.

A student will demonstrate an understanding of intermolecular forces and their relationship to physical states of matter by:

- distinguishing among ion-ion, ion-dipole, dipole-dipole, hydrogen bonding, and London dispersion intermolecular forces.
- defining induced dipole and polarizability.
- determining the major type of intermolecular force expected in a substance based on its molecular structure.
- predicting relative boiling points of substances based on expected intermolecular forces.
- defining terms related to changes of state (melting, freezing, etc.).
- explaining the concept of vapor pressure and its relationship to boiling point.

A student will demonstrate an understanding of solution behavior by:

- distinguishing between solute and solvent.
- describing the energy changes (enthalpy changes) associated with the solution process.
- expressing concentrations of solutes by mass percent, parts per million, molarity, molality, and mole fraction.
- distinguishing among saturated, unsaturated, and supersaturated solutions.
- solving calculations related to pressure effects on gas solubility.
- solving calculations related to colligative properties: boiling point elevation, freezing point depression, and osmotic pressure.

A student will demonstrate an understanding of chemical equilibrium by:

determining the equilibrium expression for a given reaction.

interpreting the magnitude of the equilibrium constant for a reaction in terms of the position of the equilibrium.

solving problems involving equilibrium constants, given information about the initial and equilibrium concentrations of reactants and products.

evaluating reaction quotients and predicting the direction of reaction shift to attain equilibrium.

determining equilibrium concentrations from equilibrium constants and initial concentrations.

utilizing Le Chatelier's Principle to predict the effect on equilibrium of changes in temperature, pressure, and concentration of substances.

A student will demonstrate an understanding of acids and bases by:

relating the ion-product constant for water, K_w , to the autoionization of water.

defining and identifying Bronsted-Lowry acids and bases by formula.

identifying the conjugate base of a given acid, and the conjugate acid of a given base.

demonstrating calculations of pH and pOH from given concentrations of strong acid or strong base solutions.

demonstrating calculations of pH and pOH from given concentrations of weak acid or weak base solutions, using K_a or K_b values.

identifying buffer solutions and performing pH calculations of them.

evaluating pH and pOH for titrations between weak acids and strong bases and between weak bases and strong acids.

identifying the behavior of different acid-base indicators.

defining solubility product and performing calculations of a substance's solubility product.

predicting precipitation reactions by utilizing the solubility product concept.

A student will demonstrate an understanding of the basics of thermochemistry and electrochemistry by:

defining and distinguishing among thermodynamic concepts such as enthalpy, entropy, and free energy.

calculating thermodynamic quantities and interpreting their values.

identifying redox reactions and balancing redox chemical equations.

Lab Student Learning Outcomes:

Learning outcomes for the lab portion of this course are hands-on applications of several of the items listed above for the lecture outcomes, emphasizing practical applications of the mole concept, and performing chemical reactions. Students are required to carry out scientific investigations using mass and volume measurements, to safely manipulate chemical equipment and glassware, and to perform calculations and draw conclusions based on data collected during the laboratory session.

****Students – please refer to the Instructor's Course Information sheet for specific information on assessments and due dates.***

Part III: Grading and Assessment

EVALUATION OF REQUIRED COURSE MEASURES/ARTIFACTS*

Students' performance will be assessed and the weight associated with the various measures/artifacts are listed below.

EVALUATION*

Lecture	75%
Lab	25%
Total	100%

***Students, for the specific number and type of evaluations, please refer to the Instructor's Course Information Sheet.**

GRADING SYSTEM:

Please note the College adheres to a 10-point grading scale A = 100 – 90, B = 89- 80, C = 79 – 70, D = 69 – 60, F = 59 and below.

Grades earned in courses impact academic progression and financial aid status. Before withdrawing from a course, be sure to talk with your instructor and financial aid counselor about the implications of that course of action. Ds, Fs, Ws, WFs and Is also negatively impact academic progression and financial aid status.

The Add/Drop Period is the first 5 days of the semester for **full term** classes. Add/Drop periods are shorter for accelerated format courses. Please refer to the [academic calendar](#) for deadlines for add/drop. You must attend at least one meeting of all of your classes during that period. If you do not, you will be dropped from the course(s) and your Financial Aid will be reduced accordingly.

Part IV: Attendance

Horry-Georgetown Technical College maintains a general attendance policy requiring students to be present for a minimum of 80 percent (80%) of their classes in order to receive credit for any course. Due to the varied nature of courses taught at the college, some faculty may require up to 90 percent (90%) attendance. Pursuant to 34 Code of Federal Regulations 228.22 - Return to Title IV Funds, once a student has missed over 20% of the course or has missed two (2) consecutive weeks, the faculty is obligated to withdraw the student and a student may not be permitted to reenroll. **Instructors define absentee limits for their class at the beginning of each term; please refer to the Instructor Course Information Sheet.**

For online and hybrid courses, check your Instructor's Course Information Sheet for any required on-site meeting times. Please note, instructors may require tests to be taken at approved testing sites, and if you use a testing center other than those provided by HGTC, the center may charge a fee for its services.

Science Department Attendance Policies

For a 15-week course (fall and spring) or a 10-week course (summer), the allowed number of absences for a MW or TR class is as follows: 4 absences are allowed for lecture and 2 are allowed for lab, regardless of reason. For a lecture class that meets once a week, the allowed number of absences is 2.

For a 7-week fast-paced course (fall and spring) or a 5-week fast-paced course (summer), the allowed number of absences is as follows: 1 absence is allowed for lecture and 1 for lab, regardless of reason.

When a student surpasses the allowed number of absences, the student will be dropped automatically from the course with a W or a WF. Remember, an absence is an absence, no matter if it is excused or not!

Online/Hybrid Attendance:

Students enrolled in distance learning courses (hybrid and online) are required to maintain contact with the instructor on a regular basis to be counted as "in attendance" for the course. All distance learning students must participate weekly in an Attendance activity in order to demonstrate course participation. Students showing no activity in the course for two weeks (these weeks do not need to be consecutive) will be withdrawn due to lack of attendance.

Lab Attendance for Hybrid Courses:

Students in hybrid classes in which labs meet weekly, are allowed two (2) lab absences. Students in hybrid labs that only meet 5 or 6 times during the semester, must attend all lab sessions for its entirety. When a student surpasses the allowed number of absences, the student will be dropped automatically from the course with a W or a WF.

Part V: Student Resources



THE STUDENT SUCCESS AND TUTORING CENTER (SSTC):

The SSTC offers to all students the following **free** resources:

1. **Academic tutors** for most subject areas, **Writing Center support**, and **college success skills**.
2. Online **tutoring** and academic support resources.
3. Professional and interpersonal communication **coaching** in the EPIC Labs.

Visit the [Student Success & Tutoring Center](#) website for more information. To schedule tutoring, contact the SSTC at ssc@hgtc.edu or self-schedule in the Penji iOS/Android app or at www.penjiapp.com. Email ssc@hgtc.edu or call SSTC Conway, 349-7872; SSTC Grand Strand, 477-2113; and SSTC Georgetown, 520-1455, or go to the [Online Resource Center](#) to access on-demand resources.



STUDENT INFORMATION CENTER: TECH Central

TECH Central offers to all students the following free resources:

1. **Getting around HGTC:** General information and guidance for enrollment, financial aid, registration, and payment plan support!
2. Use the [Online Resource Center \(ORC\)](#) including Office 365 support, password resets, and username information.
3. **In-person workshops, online tutorials and more services** are available in Desire2Learn, Student Portal, Degree Works, and Office 365.
4. **Chat with our staff on TECH Talk**, our live chat service. TECH Talk can be accessed on the student portal and on TECH Central's website, or by texting questions to (843) 375-8552.

Visit the [Tech Central](#) website for more information. Live Chat and Center locations are posted on the website. Or please call (843) 349 – TECH (8324), Option #1.



HGTC LIBRARY:

Each campus location has a library where HGTC students, faculty, and staff may check out materials with their HGTC ID. All three HGTC campus libraries are equipped with computers to support academic research and related schoolwork; printing is available as well. Visit the [Library](#) website for more information or call (843) 349-5268.

STUDENT TESTING:

Testing in an **online/hybrid** course and in **make-up exam** situations may be accomplished in a variety of ways:

- Test administered within D2L
- Test administered in writing on paper
- Test administered through Publisher Platforms (which may have a fee associated with the usage)

Furthermore, tests may have time limits and/or require a proctor.

Proctoring can be accomplished either face-to-face at an approved site or online through our online proctoring service. To find out more about proctoring services, please visit the [Online Testing](#) section of the HGTC's Testing Center webpage.

The **Instructor Information Sheet** will have more details on test requirements for your course.

DISABILITY SERVICES:

HGTC is committed to providing an accessible environment for students with disabilities. Inquiries may be directed to HGTC's [Accessibility and Disability Service webpage](#). The Accessibility and Disability staff will review documentation of the student's disability and, in a confidential setting with the student, develop an educational accommodation plan.

Note: It is the student's responsibility to self-identify as needing accommodations and to provide acceptable documentation. After a student has self-identified and submitted documentation of a disability, accommodations may be determined, accepted, and provided.

STATEMENT OF EQUAL OPPORTUNITY/NON-DISCRIMINATION STATEMENT:

Horry-Georgetown Technical College shall not discriminate in employment or personnel decisions or in student admissions or in student decisions, or in all other segments of the College community on the basis of race, color, sex, national or ethnic origin, age, religion, disability, marital or family status, veteran status, political ideas, sexual orientation, gender identity, or pregnancy, childbirth, or related medical conditions, including, but not limited to, lactation, in the educational programs and activities which it operates, and the college is prohibited from discrimination in such manner by applicable laws.

TITLE IX REQUIREMENTS:

Title IX of the Education Amendments of 1972 protects students, employees, applicants for admission and employment, and other persons from all forms of sex discrimination.

HGTC prohibits the offenses of domestic violence, dating violence, sexual assault, and stalking and will provide students, faculty, and staff with necessary information regarding prevention, policies, procedures, and resources.

Any student, or other member of the college community, who believes that they have been a victim of sexual harassment, domestic violence, dating violence, sexual assault, or stalking may file a report with the college's Title IX Coordinator or campus law enforcement*.

*Faculty and Staff are required to report these incidents to the Title IX Coordinator when involving students. The only HGTC employees exempt from mandatory reporting are licensed mental health professionals (only as part of their job description such as counseling services).

All inquiries regarding the federal laws as they relate to discrimination on the basis of sex may be directed to Tamatha Sells, Title IX Coordinator, Horry-Georgetown Technical College, Building 1100C, Room 107B, 2050 Hwy 501 E, PO Box 261966, Conway, SC 29528-6066, 843-349-5218, tamatha.sells@hgtc.edu.

OTHER INQUIRIES REGARDING THE NON-DISCRIMINATION POLICIES:

Other employee and applicant inquiries concerning the federal laws and their application to the College may be directed to Jacquelyne Synder, Vice President, Human Resources and Employee Relations & the College's Affirmative Action/Equal Opportunity Officer, Horry-Georgetown Technical

College, Building 200C, Room 205B, 2050 Hwy 501 E, PO Box 261966, Conway, SC 29528-6066, 843-349-5212, jacquelyne.snyder@hgtc.edu.

Other student and prospective student inquiries concerning the federal laws and their application to the College or any student decision may be directed to Dr. Melissa Batten, Vice President, Student Affairs, Section 504 & Title II Coordinator Horry-Georgetown Technical College, Building 1100C, Room 107A, 2050 Hwy 501 E, PO Box 261966, Conway, SC 29528-6066, 843-349-5228, Melissa.Batten@hgtc.edu.