CHE 131.31(R32-R34): General Chemistry I, (Online Synchronous)

Instructor: Dr. Waldemar M. Nieweglowski

Office Hours: Monday, Wednesday 12:30 – 14:00
Email: waldemar.nieweglowski@stonybrook.edu (Please add **CHE131** in the subject line)

Lecture: Monday, Wednesday, Friday 9:30 – 12:30

Recitations: Tuesday and Thursday

R32 17:00 – 18:20,
R33 19:00 – 20:20,
R34 13:00 – 14:20,
R35 13:00 – 14:20.

Teaching Assistants (for office hours please refer to Brightspace)

TBA

COURSE DESCRIPTION

This is the initial course in the four-semester General-Chemistry/Organic-Chemistry sequence CHE 131/132/321/322. This sequence provides the necessary foundation for students who wish to pursue further coursework in Chemistry. The General Chemistry courses provide a broad introduction to the fundamental principles of chemistry, including substantial illustrative material drawn from the chemistry of inorganic, organic, and biochemical systems. The emphasis is on basic concepts, problem-solving, and factual material. The principal topics covered are stoichiometry, the states of matter, chemical equilibrium and introductory thermodynamics, electrochemistry, chemical kinetics, electron structure and chemical bonding, and chemical periodicity. Students will be placed into CHE 131 based on their performance in an Online Chemistry Placement and Preparation (OCPP) process. Three lecture sessions and two recitation workshops per week. May not be taken for credit in addition to CHE 129 or CHE 152. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so. (4 credits)

***Prerequisite*:** Online Chemistry Placement and Preparation (OCPP) Process

***Corequisite*:** MAT 125 or higher

COURSE OBJECTIVES: Expand students' knowledge in the field of chemistry, foster critical and analytical thinking, quantitative reasoning, problem solving, teamwork, oral and written communication, and metacognition.

LEARNING OBJECTIVES

- the fundamental properties of atoms, molecules and various states of matter with particular emphasis on the nature of matter
- fundamental atomic structure, simple quantum mechanical treatments, predict molecular geometries, molecular orbital theory and periodicity.
- the fundamentals of acid/base, redox and precipitation reactions
- calculations of enthalpy of reaction, given specific thermodynamic data
- fundamentals of nuclear reactions and rates of radioactive decay

- use of stoichiometry, the concept of a mole and molar mass
- calculations and manipulations of the gas laws
- bonding models for simple organic and inorganic molecules, naming of ionic and covalent compounds

COURSE REQUIREMENTS:

- **Text:** Chemistry: A Molecular Approach (ISBN 9780137831999), Tro, 6th ed. Pearson, 2022
- **Mastering:** To access the Reading Assignments/Dynamic Study Modules/Online Homework. This is included with the purchase of the main textbook. A separate registration document/instruction will be provided on Brightspace.
- Scientific Calculator with exponents, powers, and logarithms (graphing calculators are permitted).
- Spare batteries for your calculator and response pad.
- Brightspace account is where all announcements, policies, and information will be posted. For help accessing Brightspace click Help and Support at the site.
- Respondus Lockdown Browser for online exams.
- Stony Brook Email Account accessible at stonybrook.edu/mycloud. For help with Google Apps for Education see http://it.stonybrook.edu/help/kb/logging-in-to-google-apps-for-education

HARDWARE/SOFTWARE MINIMUM REQUIREMENTS

- PC with Windows 10 or 11
- MacOS 10.12 or higher, OSX 10.11, OSX 10.10
- iOS 11.0 or higher (iPads are not recommended for this course)
- Zoom
- High speed internet connection
- Word processing software (Microsoft Word - SBU provided, Google Docs - free, etc.)
- Webcam and a microphone (Workshops, Respondus for proctoring)
- Printer (optional)
- Ability to download and install free software applications and plug-ins (note: you must have administrator access to install applications and plug-ins).

Attendance and Make Up Policy

- This is a synchronous course, lectures and recitations attendance is mandatory.
- You should attend the workshop sections to which you are assigned. All section changes will be handled through Solar. Instructors will not sign change of section forms. If you have difficulty attending workshop section in which you are registered, email Dr. Nieweglowski.
- There are no make-ups for missed lectures, workshops, homework, or midterm examinations. All absences will be scored as a zero. Two lowest quizzes grades - one from lecture and one from recitations - are dropped at the end of the semester; exam scores are not dropped.
- All students must take the final exam. Unexcused absence will result in a score of 0. A student who is unable to take the final exam because of illness or other extenuating circumstances must contact an instructor before or within 24 hours following the exam. Only then will a grade of incomplete (I) be assigned. The make-up final will

be given Monday August 28, 2024 from 11:00 – 12:30 AM (exact date will be determined). Failure to take the final or make-up exam will result in a course grade of F.

- You MUST notify Dr. Nieweglowski promptly (either directly or through Student Support) if you must miss an assignment or recitations due to unforeseen events.
- Students are advised to work through Student Support Services to ensure proper handling of emergency situations and long-term absences (e.g., missing two or more consecutive recitations, assignments, etc.). (https://www.stonybrook.edu/commcms/studentaffairs/studentsupport/)

Description and schedule of lectures and assignments.

MWF Class Lectures: Monday, Wednesday, and Friday 9:30 AM – 12:35 PM EST. Lecture slides will be posted on Brightspace before each class. Lectures will be conducted via Zoom. Zoom Meeting link is available on Brightspace. You will need to bring to each class pens or pencils, a calculator, and a notebook. You will benefit most from lecture if you complete the reading assignment prior to lecture. A popup quizzes can be held during lecture. This is synchronous course which means that the Zoom meeting is held during scheduled lecture time. Recordings for an asynchronous use are not provided.

Workshop (Recitation) Sessions: Recitations will be conducted using Zoom. You will need to bring to each workshop pens or pencils, a calculator, and a ring binder containing your work for the class. **A quiz will be given during the last 15 – 30 minutes of recitation.** The chemistry workshops are intended to help you maximize your performance in introductory chemistry courses. During workshops you will work with a team of students on activities designed to increase your understanding of course topics, your ability to apply these in simple contexts, and your ability to solve problems. Teams might be composed of three students (maximum) and will be placed in Zoom Breakout Rooms. If you follow the guidelines, this approach will help everyone in your team learn as much as possible during workshops. If you find chemistry challenging, your teammates and the instructor will help you gain the insights you need to understand concepts and solve problems. If you find chemistry easy, you will find your performance improving as you explain things to others. Attendance is required.

Homework assignments – Mastering Pearson Homework Online. Due dates for homework are final.

Quizzes: see Workshop (Recitation) section

Exams All exams are held during selected lecture meeting. Composed of a combination of multiple-choice, numerical short-answer, short answers, and ordering. Are based on materials covered in the lectures, text, workshops. Due to the nature of the material in this course all exams might appear cumulative. However, each exam will put emphasis on the material from the current topics section. (see **Table 1**) You must take each exam and quiz using the Respondus Lockdown Browser. You must have, your University ID (or another valid picture ID) and a scientific calculator with spare batteries. Graphing calculators are permitted. Respondus Monitor will act as the proctor during the exams. Accessing additional devices (such as cellphones, secondary electronic devices etc.) will not be permitted. Students must show/submit the worked-out solutions to problems at the end of the exam.

Exam Dates (all listed dates are EST) – as possible the exams will be held as scheduled in this syllabus. However, in some cases the exam date will be adjusted if necessary, to avoid breaking splitting material over several exams. Refer to the Tentative course schedule at the end of this syllabus.

An Honor Code statement will be provided for each exam. By taking and completing the exam, you acknowledge the terms in the Honor Code statement. Violations may result in a report to Academic Judiciary and a course grade of F. A review of all relevant materials will be conducted prior to each exam. Success on these exams will require

that you understand important concepts, as well as their use in solving problems relevant to the course material. If you understand assigned problems in this way, and test your understanding on problems that are not assigned, you are more likely to do well in this course.

GRADING: Course grades will be based on the following percentages (all grades will be available on Brightspace):

Homework:	12%
Exam 1:	15 %
Exam 2:	15%
Exam 3:	15%
Final Exam:	30%
Attendance:	1% (Must attend all recitations to receive credit, no partial credit will be awarded)
Quizzes:	12%
Total	100%

Final percent grades will be rounded (to the tenth's place). Final letter grades will be based on the following cutoffs:

	A: ≥ 90.0%	A-: 89.9% – 85.0%
B+: 84.9% – 80.0%	B: 79.9% – 75.0%	B-: 74.9% – 70.0%
C+: 69.9% – 65.0%	C: 64.9% – 60.0%	
D+: 59.9% – 55.0%	D: 54.9% – 50.0%	
	F: ≤ 49.9%	

Your final grade is the grade you have earned. I will not negotiate final grades, nor will I be able to provide additional extra-credit assignments to "bump" your grade.

CLASS PROTOCOLS:

- All lectures and workshops will be conducted using Zoom.
- Microphones: During lecture, please keep your microphones muted unless you want to ask a question. During workshops, microphones should be active to engage in team discussion.
- Webcams: During lectures, you may keep your webcams off unless you ask a question. During workshops, webcams should be active.
- Questions regarding class topics are always welcome. Questions that are not directly related to class topics should be directed to the instructor immediately before or after class, and instructors will do their best to be available at these times. If the instructor is not available immediately before or after class, questions can be taken during office hours or sent to instructor email.
- Stony Brook University expects students to: maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws and University regulations; and to respect the rights, privileges, and property of other people. Any behavior that interrupts the ability of instructors to teach, the safety of the learning environment, and/or students' ability to learn will be reported to University Community Standards. Students who display such behavior may be asked to consult with one of the

course instructors or asked to leave a class session, whereupon University Police will be notified. Information on campus policy regarding student disruptions can be found at http://www.stonybrook.edu/sb/behavior.shtml

COURSE RESOURCES:

Brightspace: should be checked regularly for announcements, reading and homework assignments, lecture notes, help room schedules, sample exams from previous semesters, and other important matters. Support for Brightspace is available through the information at brightspace.stonybrook.edu.

Getting Help:

- Help with concepts or assignments is available during office hours or by appointment.
- Issues with the Workshops should be addressed to your Workshop Instructor. Issues that cannot be resolved by your instructor should be taken to Dr. Nieweglowski during his office hours as posted on Brightspace under Course Information.
- Questions about course content, organization, grades, exams, or personal problems should be addressed to Dr. Nieweglowski, immediately after lectures or during office hours.
- Office hours for all instructors are posted under Announcements in Brightspace.
- Additional academic help may be available through the Residential Tutoring Centers (studentaffairs.stonybrook.edu/res_programs/rtc/) or the Academic Success & Tutoring Center (stonybrook.edu/commcms/academic_success/).

REQUIRED SYLLABUS STATEMENTS

The University Senate has authorized that the following required statements appear in all teaching syllabi on the Stony Brook Campus. This information is also located on the Provost's website.

Student Accessibility Support Center (SASC) Statement:
If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, Stony Brook Union Suite 107, (631) 632-6748, or at sasc@stonybrook.edu. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.
Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and the Student Accessibility Support Center. For procedures and information go to the following website: https://ehs.stonybrook.edu//programs/fire-safety/emergency-evacuation/evacuation-guide-disabilities and search Fire Safety and Evacuation and Disabilities.

Academic Integrity Statement:
Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Professions, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at http://www.stonybrook.edu/commcms/academic_integrity/index.html

In this course you are strongly encouraged to work with others to master the material in the class activities, workshops, and homework. However, in working with others to arrive at your response to a question, you must understand and be able to explain the rationale behind your response and not just report someone else's answer. It is intellectually dishonest to report someone else's work and understanding as your own. Therefore, violations of the following will result in a course grade of F and a report to the Academic Judiciary.

- You must submit responses to in-class questions and problems only with your own clicker subscription.
- You must record and submit your own answers to homework questions based on your understanding not on how someone else told you to respond.
- You must work independently when asked to do so.
- You must take the in-class exams and the final exam independently with no assistance from any other person, without the aid of any unauthorized materials, and without access to any electronic communication devices.
- Violations may result in a report to Academic Judiciary and a course grade of F.

Critical Incident Management Statement:
Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Student Conduct and Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.

Table 1: Tentative schedule of lectures and exams

1.1–1.9	Matter, Measurement, and Problem Solving
2.1–2.9	Atoms and Elements
3.1–3.10	Molecules and Compounds
4.1–4.5	Chemical Reactions and Chemical Quantities
5.1–5.9	Introduction to Solutions and Aqueous Reactions

Exam I (Ch 1-4)	**4-June**

6.1–6.10	Gases
7.1-7.9	Thermochemistry
8.1-8.6	The Quantum-Mechanical Model of the Atom
9.1-9.9	Periodic Properties of the Elements

Exam II (Ch 5-8)	**16-June**

10.1-10.10	Chemical Bonding I: The Lewis Model
11.1–11.10	Chemical Bonding II: Molecular Shapes, Valence Bond Theory, and Molecular Orbital Theory
12.1–12.3	Liquids, Solids, and Intermolecular Forces

Exam III (Ch 9–11)	**25-June**

21.1-21.10	Radioactivity and Nuclear Chemistry
3.11, 22.3–22.8	Organic Chemistry
23.4–23.5	Monomers & Polymers; Biological Macromolecules

Exam IV Final (cumulative)	**2-July**