

CHE 132: General Chemistry II, Section 01 (Online Course)

Instructor:

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Office Hours: TBA

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Teaching Assistants:

TBA

COURSE DESCRIPTION: A continuation of either CHE 129 or 131, introducing the fundamental principles of chemistry, including substantial illustrative material drawn from the chemistry of inorganic, organic, and biochemical systems. 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. The sequence emphasizes basic concepts, problem solving, and factual material. It provides the necessary foundation for students who wish to pursue further coursework in chemistry. Three lecture hours and one 80-minute workshop per week. May not be taken for credit in addition to 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. This course has an associated fee. Please see www.stonybrook.edu/coursefees for more information.

Prerequisite: C or higher in CHE 129 or CHE 131

Co-requisite: MAT 125 for those who took CHE 129 or 130 or BA BIO majors; all others MAT 126 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. Specific learning objectives for each lecture will be posted in Blackboard.

LEARNING OBJECTIVES:

Students will gain an understanding of the following:

- a. Using thermodynamic data in order to describe, relate and perform calculations involving enthalpy, entropy and free energy.
- b. Using experimental data to determine/calculate the rate law of a reaction, order of a chemical reaction, rate constant, and reaction mechanisms (rate-determining steps, intermediates, elementary steps).
- c. Factors that affect reaction rates such as temperature, concentrations, presence of a catalyst etc.
- d. Predicting the effects of concentrations, pressure/volume and temperature using LeChâtelier's Principle.
- e. pH/pOH, concentration calculations and construction of pH titration curves based on acid-base titrations
- f. Calculations involving buffer solutions and determining the pH/pOH of salt solutions.
- g. Calculations involving equilibrium constants and reaction quotients.
- h. Writing balanced redox reactions, explanation of galvanic/electrolytic cells and calculations using relevant values/equations such as ΔG° , ΔG , E°_{cell} , E_{cell} , K , Nernst equation.
- i. Naming and identifying coordination complexes including geometric isomers
- j. Using crystal field theory to predict properties such as magnetism, low vs. high spin states for various molecular shapes, color and electronic calculations (energy and wavelength)

- k. Calculations based on colligative properties such as molar mass, molality, molarity, mole fraction.
- l. Types and properties of crystalline solids

COURSE REQUIREMENTS:

- **Text:** Chemistry: A Molecular Approach (ISBN 9780134989877), Tro, 5th ed. Pearson, 2020.
- **Assessment and Learning in Knowledge Spaces (ALEKS) registration.** See ALEKS section on page 6.
- The course fee provides you with an e-textbook version of Chemistry: The Molecular Nature of Matter and Change Silberberg, 8th ed. McGraw-Hill, 2017 through ALEKS. *Please note that the ALEKS textbook and the course textbook are different.*
- **Mastering:** To access the Reading Assignments, Dynamic Study Modules (aka Reading Quizzes) and Recitation Activities. This is included with the purchase of the main textbook.
- **TurningPoint Response Card or Smartphone/Tablet/Computer App** for responding to in-class questions. Clickers cannot be shared between students.
- **TurningPoint Registration.** See TurningPoint section, on page 6, on purchasing and registering your clicker.
- **Scientific Calculator** with exponents, powers, and logarithms (graphing calculators are permitted).
- **Spare batteries** for your calculator and response pad.
- **#2 pencils and erasers** for each exam.
- **Ring binder** to organize your work.
- **Blackboard.stonybrook.edu** account is where all announcements, policies, and information will be posted. For help accessing Blackboard 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>.

Exam Dates (all listed dates are EST):

Exam 1, Friday July 16, 2021	6:00 PM – 11:59 PM
Exam 2, Friday July 23, 2021	6:00 PM – 11:59 PM
Exam 3, Friday July 30, 2021	6:00 PM – 11:59 PM
Exam 4, Friday August 6, 2021	6:00 PM – 11:59 PM
Final Exam, Friday August 13, 2021	10:00 AM – 12:30 PM

Attendance and Make Up Policy

- 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. Amarante.
- There are no make ups for missed lectures, workshops, ALEKS deadlines, or midterm examinations. All absences will be scored as a zero; the lowest scores for lecture, workshops, and ALEKS assignments are dropped at the end of the semester; exam scores are not dropped. If a written excuse with appropriate documentation is presented within one week of your return to class, and, for workshops, if you provide evidence of having completed the missed work, you may be excused and the final score prorated. Documents should be submitted as follows:
Exams and ALEKS: Amarante; Workshops: your workshop instructor
Lecture absences are not excused except in extreme circumstances as several grades are dropped at the end of the semester.
- 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 Wednesday August 25, 2021 from 1:00 – 3:30 PM and appropriate documentation is required at that time. Failure to take the final or make-up exam will result in a course grade of F.

Description and schedule of lectures and assignments.

MWF Class Lectures: Monday, Wednesday, and Friday 9:30 AM – 12:35 PM EST. Lecture notes will be posted on Blackboard before each class. Lectures will be conducted via Zoom. Zoom Meeting link is available on Blackboard. All lectures will be recorded and uploaded to Blackboard. You will need to bring to each class pens or pencils, a calculator and a device for responding to lecture questions with TurningPoint. These lectures include interactive learning sessions designed to help you understand key concepts and apply them in exercises and problems. You will work on these activities in the class and report your answers with TurningPoint. You will benefit most from these sessions if you prepare by completing the reading assignment.

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. Each student will also need upload s/he work to the appropriate Blackboard assignment upon the conclusion of each recitation. Individuals or teams who fail to bring these may have points deducted from their workshop grade. 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 will 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. Team roles are used to distribute the responsibilities.

ALEKS: Regular online homework assignments are given via the ALEKS system. Solutions to these problems should be kept in your Chemistry Notebook. Please refer ALEKS website for due dates.

Mastering: Reading assignments in the online textbook will be accompanied by short quizzes (dynamic study modules). Please refer to the Mastering calendar for due dates.

Exams

Exams (composed of a combination of multiple-choice, numerical short-answer and ordering) are based on materials covered in the lectures, text, workshops, and ALEKS are scheduled as indicated above. You must take each exam 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 the proctor during the exams. Exams are open-book and open notes. However accessing additional devices (such as cellphones, secondary electronic devices etc.) will not be permitted. 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 Blackboard):

Clickers: 3.0%	Exam 1: 13.0%
Workshop: 8.0%	Exam 2: 13.0 %
ALEKS Objectives: 5.0%	Exam 3: 13.0%
ALEKS Summary: 5.0%	Exam 4: 13.0%
Mastering: 6.0%	Final Exam: 21.0%

The lowest workshop (1), ALEKS Objectives (1) and the clicker scores (3) will be dropped at the end of the semester. Final percent grades will be rounded up (to the tenth's place). Final letter grades will be based on the following cutoffs:

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

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:

Blackboard: should be checked regularly for announcements, reading and homework assignments, lecture notes, help room schedules, solutions to end-of-chapter problems, sample exams from previous semesters, and other important matters. Support for Blackboard is available through the information at blackboard.stonybrook.edu.

Getting Help:

- Help with concepts or assignments is available during office hours or by appointment.
- Technical problems with Connect, TurningPoint, or ALEKS must be addressed to their Technical Support as described in the registration instructions for each. Please report any difficulties with technical support to Dr. Amarante.
- Grading issues with ALEKS should be addressed by email to Dr. Amarante or during his office hours.
- Issues with the Workshops should be addressed to your Workshop Instructor. Issues that cannot be resolved by your instructor should be taken to Dr. Amarante during his office hours as posted on Blackboard under Faculty Information.
- Questions about course content, organization, grades, exams, or personal problems should be addressed to Dr. Amarante, immediately after lectures or during office hours.
- Office hours for all instructors are posted under Faculty Information in Blackboard.
- 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/).

STUDENT ACCESSIBILITY STATEMENT:

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Student Accessibility Support Center, ECC (Educational Communications Center) Building, Room 128, (631) 632-6748. They will determine with you what accommodations, if any, 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 <https://www.stonybrook.edu/sasc/>.

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. The faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at www.stonybrook.edu/commcms/academic_integrity.

In this course you are strongly encouraged to work with others to master the material in the text, lecture notes, workshops, and

ALEKS Objectives. 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 device. Students using more than one device will be considered in violation along with the student whose device they are using.
- You must record and submit your own answers to Connect and ALEKS 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 examinations independently with no assistance from any other person, without the aid of any unauthorized materials, and without access to any electronic communication devices.

CRITICAL INCIDENT MANAGEMENT:

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs 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.

ELECTRONIC COMMUNICATION STATEMENT:

Email and especially email sent via Blackboard (<http://blackboard.stonybrook.edu>) is one of the ways the faculty officially communicates with you for this course. It is your responsibility to make sure that you read your email in your official University email account. For most students that is Google Apps for Education (<http://www.stonybrook.edu/mycloud>), but you may verify your official Electronic Post Office (EPO) address at <http://it.stonybrook.edu/help/kb/checking-or-changing-your-mail-forwarding-address-in-the-epo>.

If you choose to forward your official University email to another off-campus account, faculty are not responsible for any undeliverable messages to your alternative personal accounts. You can set up Google Mail forwarding using these DoIT-provided instructions found at <http://it.stonybrook.edu/help/kb/setting-up-mail-forwarding-in-google-mail>.

If you need technical assistance, please contact Client Support at (631) 632-9800 or supportteam@stonybrook.edu. Submit a help request ticket: <https://it.stonybrook.edu/services/itsm>

Understand When You May Drop This Course:

It is the student's responsibility to understand when they need to consider withdrawing from a course. Refer to the Stony Brook Academic Schedule for dates and deadlines for registration: http://www.stonybrook.edu/commcms/registrar/calendars/academic_calendars.

- [Undergraduate Course Load and Course Withdrawal Policy](#)
- [Graduate Course Changes Policy](#)

Incomplete Policy:

Under emergency/special circumstances, students may petition for an incomplete grade. Circumstances must be documented and significant enough to merit an incomplete. If you need to request an incomplete for this course, contact me for approval as far in advance as possible.

Course Materials and Copyright Statement:

Course material accessed from Blackboard, SB Connect, SB Capture or a Stony Brook Course website is for the exclusive use of students who are currently enrolled in the course. Content from these systems cannot be reused or distributed without written permission of the instructor and/or the copyright holder. Duplication of materials protected by copyright, without permission of the copyright holder is a violation of the Federal copyright law, as well as a violation of Stony Brook's Academic Integrity.

Online Communication Guidelines and Learning Resources:

Maintain professional conduct both in the classroom and online. The classroom is a professional environment where academic debate and learning take place. I will make every effort to make this environment safe for you to share your opinions, ideas, and beliefs. In return, you are expected to respect the opinions, ideas, and beliefs of other students—both in the face-to-face classroom and online communication. Students have the right and privilege to learn in the class, free from harassment and disruption. The course follows the standards set in the Student Code of Conduct, and students are subject to disciplinary action for violation of that code. If your behavior

does not follow the course etiquette standards stated below, the grade you receive for a posting may suffer. I reserve the right to remove any discussion messages that display inappropriate language or content.

Online Etiquette:

- Offensive language or rudeness will not be tolerated. Discuss ideas, not the person.
- Avoid cluttering your messages with excessive emphasis (stars, arrows, exclamations).
- If you are responding to a message, include the relevant part of the original message in your reply, or refer to the original post to avoid confusion;
- Be specific and clear, especially when asking questions.
- Use standard punctuation and capitalization. Using all UPPERCASE characters gives the appearance of shouting and makes the message less legible;
- Remember that not all readers have English as their native language, so make allowances for possible misunderstandings and unintended discourtesies.

Online Classes Require Better Communication:

It is important to remember that we will not have the non-verbal cues that occur in a face-to-face classroom. I cannot see the confused, frustrated, or unhappy expressions on your face if you encounter problems. You **MUST** communicate with me so that I can help. To make the experience go smoothly, remember that you're responsible for initiating more contact, and being direct, persistent, and vocal when you don't understand something.

Technology Requirements:

This course uses Blackboard for the facilitation of communications between faculty and students, submission of assignments, and posting of grades and feedback. The Blackboard course site can be accessed at <https://blackboard.stonybrook.edu>

If you are unsure of your NetID, visit <https://it.stonybrook.edu/help/kb/finding-your-netid-and-password> for more information. You are responsible for having a reliable computer and Internet connection throughout the term. Caution! You will be at a disadvantage if you attempt to complete all coursework on a smart phone or tablet. It may not be possible to submit the files required for your homework assignments.

Students should be able to use email, a word processor, spreadsheet program, and presentation software to complete this course successfully.

The following list details a minimum recommended computer set-up and the software packages you will need to have access to, and be able to use:

- PC with Windows 7, 8 or 10
- MacOS 10.12 or higher, OSX 10.11, OSX 10.10
- iOS 11.0 or higher (iPad only)
- Need to download and install Respondus Lockdown Browser (see instructions in separate document). Please note Lockdown browser does not work on Chromebooks. If you have a Chromebook please notify Dr. Amarante immediately.
- Respondus Lockdown Browser resources link: <https://web.respondus.com/he/lockdownbrowser/resources/>
- Latest version of Chrome or Firefox; Mac users may use Chrome or Firefox. (A complete list of supported browsers and operating systems can be found on the My Institution page when you log in to Blackboard.)
- High speed internet connection
- Word processing software (Microsoft Word, Google Docs, etc.)
- Webcam and a microphone
- 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).

CLICKERS

All information for purchasing and using your clicker can be found at <https://it.stonybrook.edu/services/clickers> under Student FAQs. You will need to download the app or use a physical clicker AND buy a subscription.

REGISTERING FOR ALEKS FOR ONLINE HOMEWORK ASSIGNMENTS

If you have an existing ALEKS account:

1. Go to <http://www.aleks.com> and log in.
2. From your ALEKS account home, click the "+New Class"
3. On the next screen enter the course code: **To Be Announced**. Click Continue. (NOTE: Use the same login name as the OCPP course but you must add a new course code; you're not just continuing OCPP. You need to start a new course CHE 132).
4. Check that the Course is listed as CHE 132 Summer 2021, then click Continue and follow the instructions.

If you have trouble registering for ALEKS go to <https://mhedu.force.com/aleks/s/> for assistance. Once you enter an ALEKS course for the first time you will need to complete a brief tutorial, then an Initial Knowledge Check, then you will be ready to begin working on your first homework assignment.