

# CHEM 131: General Chemistry I Lecture

## Section 001

### Spring 2021

#### GENERAL INFORMATION

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**INSTRUCTOR:** Dr. Joseph T. Bushey

**OFFICE:** online

**E-MAIL:** [jbushey@towson.edu](mailto:jbushey@towson.edu)

**OFFICE HOURS:** (*SEE LINKS PROVIDED ON BB*)

Monday 13:00 – 14:00

Wednesday 15:00 – 16:00

Thursday 16:00 – 17:30

**131 HELP SESSION: HOSTED BY OLIVIA DRIESSEN** (*SEE LINKS PROVIDED ON BB*)

Virtual: Monday 15:00 – 16:00

**CLASS TIMES:**

Virtual: MWF 11:00 – 12:00 via Blackboard Collaborate Ultra (see link on BB)

- See *Tentative Schedule* on BB for daily coverage and weekly schedule

**STUDENT RESPONSIBILITIES:**

1. Attend class recitation (in person or online)
2. Read the text, watch assigned videos, and take notes
3. Complete homework assignments on time & work practice problems outside of recitation
4. Study 7-9 hours every week
5. DO NOT CHEAT

**REQUIRED MATERIALS:**

**TEXTBOOK & ONLINE RESOURCES:** *Chemistry: A Molecular Approach* 5<sup>th</sup> Edition, by Tro (Direct Access through Blackboard). Direct access includes Pearson's Mastering.

**REQUIRED MATERIALS:** Scientific calculator

**BLACKBOARD:**

Blackboard will be used to post materials required for the course and grades on assignments. Announcements and due dates for assignments will be posted. Students are responsible for checking the site regularly during the semester and completing assignments on time.

Quizzes and exams will be administered via Blackboard. Therefore, a computer and stable internet access are required. Towson University provides laptops for students to borrow, as well as technology and resources support (<https://www.towson.edu/scs>). Here is the email address for student computing services ([scs@towson.edu](mailto:scs@towson.edu)). Additionally, students can apply for CARES Act funding to purchase their own computer (<https://www.towson.edu/studentaffairs/care/student-emergency-fund.html>).

## **COURSE OVERVIEW**

### **COURSE DESCRIPTION:**

CHEM 131 is the first course in a two-semester sequence in introductory chemistry intended primarily for majors in the natural and mathematical sciences. Upon completing this course you should have a working understanding of atomic and molecular structure, stoichiometry, common classes of chemical reactions, solutions, gases and chemical bonding. *CHEM 131L must be taken concurrently.*

For the spring 2021 semester, this course will be taught online using a Flipped Classroom approach. This means that students are expected to read the chapter in the eText and watch the lecture videos BEFORE attending the synchronous online lecture and recitation meetings. Recitation is an opportunity for students to apply the information they learned to solve problems in groups.

### **COURSE GOALS:**

1. Students will display competency in essential skills required of a college graduate by: Demonstrating knowledge of methods used to collect, interpret, and apply scientific data.
2. Students will explore and integrate knowledge in order to understand how various disciplines interrelate by:
  - a. Articulating relevant basic assumptions, concepts, theoretical constructs and factual information of chemistry.
  - b. Understanding and applying relevant methodologies and strategies of inquiry.
  - c. Applying appropriate critical-thinking/problem-solving skills and communication skills in context.
3. Students will use inquiry and critical judgment to make decisions by:
  - a. Reflecting and evaluating claims and evidence (rather than merely reporting information).
  - b. Thinking in complex terms that move beyond an either/or binary approach.

### **STUDENT LEARNING OUTCOMES:**

Students will be able to:

1. Utilize scientific vocabulary and examples to describe major ideas appropriate to a specific scientific discipline.
2. Use quantitative reasoning to analyze and/or support scientific information.
3. Identify, describe critique, respond to, and construct the various components of the scientific process such as observations, inferences, operational definitions, aspects of scientific design, conclusions, control of variables, etc.
4. Explain scientific issues of current importance to society within scientific, technological, historical, societal and ethical contexts.

### **COPYRIGHT NOTICE:**

Your instructor retains all copyrights to all original materials distributed in this course (including, but not limited to, hard copies and electronic copies of lecture slides, notes, practice problems, worksheets, assignments, lab materials, and exams). Reposting, selling, or otherwise distributing these materials in any fashion at any time is prohibited.

## ASSIGNMENTS & GRADING

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The overall course grade will be computed as shown below. Any grade questions on a given assignment must be brought to the instructor's attention prior to the last day of classes.

**HOMEWORK (10% OF TOTAL GRADE):** Pearson's Mastering program is a web-based assessment system required for this course, and is included with the Direct Access eText package. Assignments through Mastering are provided for each chapter and due dates are posted at the beginning of the semester. **Students with a Student Affairs ([studentaffairs@towson.edu](mailto:studentaffairs@towson.edu)) verified excused absence must provide documentation to their instructor within 24 hours of the due date to be allowed to make up missed assignments.** Students have at least one week (for most, at least two weeks) to complete the assignment. Therefore, there are no extensions for homework assignments without a verified excused absence. Dynamic Study Modules are always available for practice, and if completed by the due date, count as extra credit points.

**RECITATION (15% OF TOTAL GRADE):** 'Recitation' problem sets will be administered via Blackboard on each Monday lecture starting in Week 2 for a total of 15 sets. These will be conducted in-class with the problems worth 5 pts per week. Attendance of the Monday BB Collaborate Ultra will constitute the remaining 5 pts per week. Attendance will be scaled according to the length of record for the BB Ultra session. Participation points cannot be made up without a Student Affairs documented excused absence! Thus, you must attend the recitation sessions and correctly complete the work to earn the full points.

**QUIZZES (60% OF TOTAL GRADE):** Twelve announced quizzes will be given online throughout the semester during class. See below for additional information regarding timing and delivery.

**FINAL EXAM (15 % OF TOTAL GRADE):** There will be one cumulative online final exam given on Saturday May 15<sup>th</sup> from 12:30-2:30 pm.

**QUIZ CONFLICT:** In the case that a student has a university sanctioned event or religious observance that will conflict with an in-class quiz, the student must provide documentation to the instructor a minimum of 2 weeks in advance of the quiz date (sooner if possible). An alternate time can be arranged to take a quiz *PRIOR* to the scheduled quiz time. If written notification is not provided to the instructor before to the quiz date, the student will be subject to the missed quiz policy below.

**MISSED IN-CLASS QUIZZES:** Students are expected to take all quizzes as scheduled. **If a student misses a quiz due to an excused absence (documented through Student Affairs: [studentaffairs@towson.edu](mailto:studentaffairs@towson.edu)), the student must contact the instructor within 24 hours of the quiz time.** Instead of a make-up quiz, a problem set will be assigned that must be completed within one week of the quiz date. If the problem set is completed and earns instructor approval, the final exam percentage earned will be used in place of the missed quiz for the course grade determination. If the problem set is not completed with instructor approval, the missed quiz will be counted as a zero.

**FINAL EXAM:** The final exam is required. If extreme circumstances prevent a student from taking the final exam at the scheduled time, they must contact the instructor by email within 24 hours detailing their circumstances. At that point, it is up to the instructor to determine *if* and when an alternate exam time will be scheduled. The final exam is Saturday May 15<sup>th</sup> from 12:30-2:30 pm.

**FINAL FORGIVENESS:** The following policy applies only to students who complete *all* twelve in-class quizzes. In the event a student earns a higher percentage on their final exam than **one** of the twelve in-class quiz percentages, the final exam percentage will be substituted for that quiz grade. In the event the final exam percentage is lower than all twelve quiz grades, all in-class quiz scores will remain unchanged. **Using the final exam grade as a substitution for a missed quiz takes priority over the substitution of a final exam grade for a lower in-class quiz grade.**

## ASSIGNMENTS & GRADING

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Quizzes will occur on each Friday (excluding Week 1 and Spring Break) and be delivered via Blackboard under the *Exam Links & Materials* tab. Quizzes will take place during (approximately) the final 75% of each scheduled class period and consist of two parts: (1) a short answer and (2) a free response. Answers to the free response portion will be uploaded as a picture which **MUST INCLUDE** a valid TU ID. The specific length of each exam will vary slightly but each section will be ~10-15 minutes for a total weekly total of ~25 min. Announcements will be delivered prior to each weekly quiz outlining the timing and number of questions for each section. Students will have a 10-minute window from the start time to access and begin each section. At the end of the allotted time for each section, the exam will automatically be submitted. When providing solutions to quiz questions, students must use the preferred method explained in class to earn full credit. If an alternative method is used, students must be prepared to justify and explain the solution during a meeting with the instructor.

The first two weeks, practice quizzes will be delivered. These will **NOT** count towards the final grade and are given as review and to familiarize students with the exam format and testing platform.

- Practice Quiz: 1/29 (delivered outside of class time to familiarize with the BB testing platform)
- Practice Quiz: 2/5 (delivered **IN** class to practice timing of exam and further explore data entry)

Quizzes given on Fridays in weeks 3-14 **will** count towards the final grade.

<b>Quiz 1:</b> 2/12	<b>Quiz 4:</b> 3/5	<b>Quiz 7:</b> 4/2	<b>Quiz 10:</b> 4/23
<b>Quiz 2:</b> 2/19	<b>Quiz 5:</b> 3/12	<b>Quiz 8:</b> 4/9	<b>Quiz 11:</b> 4/30
<b>Quiz 3:</b> 2/26	<b>Quiz 6:</b> 3/26	<b>Quiz 9:</b> 4/16	<b>Quiz 12:</b> 5/7

**FINAL EXAM:** Saturday May 15<sup>th</sup>, 12:30-2:30 pm

<b>POINTS:</b>	<b>Assignment</b>	<b>Each Worth</b>	<b>Total</b>
	Homework (10 total)	10	100
	Recitation/Attendance	10	150
	Quizzes (12 total)	50	600
	Cumulative Final Exam	150	150
		<b>Total Points</b>	<b>1000</b>
<b>EXTRA CREDIT:</b>	*Dynamic Study Modules (10 total)	2.5	25

<b>GRADING SCALE:</b>	A	93-100	C+	77-79.9
	A-	90-92.9	C	70-76.9
	B+	87-89.9	D+	67-69.9
	B	83-86.9	D	60-66.9
	B-	80-82.9	F	Below 60

**\*DYNAMIC STUDY MODULES (EXTRA CREDIT):** Dynamic Study Modules are additional Assignments provided as Extra Credit on the Pearson's Mastering program site. These are interactive learning modules intended to supplement the lecture material and enhance learning. There are 10 assignments (1 per chapter) on the Pearson site located with the Homework. Each is worth a total of 2.5 pts for a total of 25 additional extra points (a 2.5% boost in your overall grade!!!) **NOTE: these assignments have Due Dates ... make sure to finish in time to get the extra credit.**

## COURSE POLICIES & REQUIREMENTS

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ACCOMMODATIONS:	Students with approved accommodations must submit their ADS memos to the instructor <i>the first week of class</i> . It is the student's responsibility to present this paperwork and to follow up regarding accommodations that require instructor participation (eg testing accommodations). Please contact Accessibility & Disability Services <a href="http://www.towson.edu/accessibility-disability-services/">http://www.towson.edu/accessibility-disability-services/</a> with any further questions.
ATTENDANCE & COURSE ASSIGNMENTS:	<p>Watching and taking notes on <u>all</u> pre-recorded lectures is expected. Attendance is expected at <u>all</u> in-person or synchronous online recitation meetings.</p> <p>It is the student's responsibility to complete course work on time, including homework and online quizzes/exams, by the dates posted on Blackboard, provided on Pearson, or listed in the syllabus. <b>Students with a Student Affairs verified excused absence must provide documentation to their instructor within 24 hours of the due date to be allowed to make up missed assignments.</b> It is the student's responsibility to understand all missed course work policies (see page 3).</p> <p>In the case that a student has a university sanctioned event or religious observance that will conflict with a class assignment, the student must provide documentation to the instructor a <u>minimum of 2 weeks in advance</u> of the event/observance (sooner if possible). Alternate due dates/assignments will be arranged as appropriate. If written notification is not provided to the instructor <b>PRIOR</b> to the event/observance, the student may receive a zero for the missed work.</p>
CHEATING	Students are subject to the Towson University Student Academic Integrity Policy, available on the university website. Note that academic dishonesty includes (but is not limited to) cheating <i>and</i> allowing another student to cheat. <i>Any</i> violation of the university's academic integrity policy will be penalized, up to and including a grade of F <i>for the course</i> for each student involved. In addition, letters detailing the specifics of the occurrence will be kept on file by the University for seven years.
COMMUNICATION	All course documents will be available on Blackboard. Students are responsible for anything sent by the instructor via email or posted on Blackboard. All email communication will be sent to university email accounts; students are responsible for checking that account frequently.
DIVERSITY	<p>The students, faculty, and staff at Towson University represent a diverse and vibrant community of learners and scholars. As a community, we value the unique contributions of each individual and promote active participation in all aspects of the learning process by each community member. Your instructor supports Towson University's goal of fostering a diverse and inclusive educational setting. Your instructor strives to create a classroom environment built upon the principles of mutual respect and support. Toward this end, all members participating in this course are expected to demonstrate respect for all other members of the class. If you feel these expectations have not been met, please speak with your instructor or the designated diversity liaison, <a href="mailto:czeller@towson.edu">Dr. Cindy Zeller (czeller@towson.edu)</a>.</p> <p>For further information regarding the diversity and inclusion policies of Towson University, please see <a href="#">Towson University's "Strategy 1: Exposure to Diversity"</a>, <a href="#">the Fisher College of Science and Mathematics Diversity Action Plan</a>, and the <a href="#">Chemistry Department Diversity Action Plan</a>.</p>

## STUDYING RESOURCES

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<b>OFFICE HOURS</b>	I am available for help during my office hours (see page 1) or by email.
<b>COMMON STUDY SESSION</b>	Ms. Oliva Driessen will host a common study session for all CHEM 131 students (see page 1).
<b>PEARSON RESOURCES</b>	<p>The book website has many additional resources. These include:</p> <ul style="list-style-type: none"><li>• End of Chapter Self Assessment quiz</li><li>• End of Chapter Problems</li><li>• In-chapter videos</li><li>• Dynamic Study Modules</li></ul>
<b>TUTORING CENTER</b>	Free tutoring is available. Join the science online tutoring community on Blackboard using the website: <a href="https://www.towson.edu/tutoring-learning/course-support/tutoring/natural-science.html">https://www.towson.edu/tutoring-learning/course-support/tutoring/natural-science.html</a> .
<b>WEBSITES</b>	<p>Ms. Liina Ladon has posted many useful handouts about General Chemistry problem solving on her website <a href="https://tigerweb.towson.edu/ladon/">https://tigerweb.towson.edu/ladon/</a></p> <p>Additional resources are available through the Tutoring and Learning Center <a href="https://www.towson.edu/tutoring-learning">https://www.towson.edu/tutoring-learning</a></p>

## CHEM 131 COURSE CONTENT

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CHAPTER	SECTIONS
1. Matter, Measurement and Problem Solving	1.1 – 1.8
2. Atoms and Elements	2.1– 2.9; 21.2–21.6
3. Molecules and Compounds	3.1– 3.11
4. Chemical Reactions and Chemical Quantities	4.1– 4.5
5. Introduction to Solutions and Aqueous Reactions	5.1– 5.9
6. Gases	6.1– 6.10
7. Thermochemistry	7.1– 7.9
8. The Quantum-Mechanical Model	8.1– 8.6
9. Periodic Properties of the Elements	9.1– 9.9
10. Chemical Bonding I	10.1– 10.10
11. Chemical Bonding II	11.1 – 11.4