Elementary Chemistry
The University of Toledo
College of Natural Sciences and Mathematics
Department of Chemistry and Biochemistry
Chem1090 – 901 DL, CRN 54373

Instructor: Dr. Elizabeth Zhurova
Email: Elizabeth.Zhurova@utoledo.edu
Office Hours: TR 3:30-5:00 PM & W 2:00-4:00 PM
Office Location: Online/BO2096G

Offered: Fall 2020
Course Website: Blackboard Learn
Class Location: Online, Blackboard Learn
Credit Hours: 3

COURSE/CATALOG DESCRIPTION
For students who major in science, engineering or other fields which require chemistry as a prerequisite subject who have not had a previous course in chemistry and whose preparation is not sufficient to begin General Chemistry (CHEM 1230).

PREREQUISITES AND COREQUISITES
MATH 1200 with a minimum grade of C, or MATH 1320 with a minimum grade of C, or MATH 1340 with a minimum grade of C, or MATH 1750 with a minimum grade of C, or MATH 1830 with a minimum grade of C, or MATH 1850 with a minimum grade of C, or ACT Math with a score of 20, or Aleks Math Placement Test with a score of 046, or Math - Coll Algebra Placement with a score of 10, or SAT Mathematics with a score of 480, or MATH SECTION SCORE with a score of 510.

In order to succeed in Elementary Chemistry, your Math background should be sufficient. If you are not comfortable solving linear equations and working with exponential numbers, please contact me as soon as possible. Extra help in the form of online tutoring and SI sessions is available in the class (see below).

TEACHING STRATEGIES
The textbook is an important part of this course. You need to read the sections from the book assigned by the instructor.

Lectures are designed to clarify the concepts covered and provide examples of what is expected of you. Lecture sessions are recorded in the classroom, and video files are posted on Blackboard.

Powerpoint Lecture Slides are useful to quickly clarify or check the concept or problem solution. PDF-files of lecture slides are posted on Blackboard.

ALEKS (Assessment and LEarning in Knowledge Spaces) online homework system is designed to create assignments tailored to the unique needs of each student. It is based on artificial intelligence. The first time you log in, ALEKS will ask a series of questions designed to assess exactly what you do and do not know about Math and Chemistry. After this initial assessment, you will have a list of topics to work through based on what you are ready to learn. ALEKS will not ask you to work on material you already know, nor will it ask you to work on advanced material until you are ready to do so. All ALEKS homework assignments and assessments have deadlines. Only (1) make-up for missed or late assignment will be provided over semester. If you need more extensions, please provide a doctor note or other documented excuse. Please include 2-3 hours, 2-4 times a week of ALEKS work into your schedule. Please refer to ALEKS privacy policies at https://www.mheducation.com/privacy.html
REQUIRED TEXTS AND ANCILLARY MATERIALS
1. Properly functioning computer with Internet access. This course contains streaming video and audio content.
3. ALEKS online homework is a part of Inclusive Access program, and you already paid for ALEKS subscription. It is available to you through Blackboard.
4. Non-programmable, non-graphical scientific calculator.

A package containing hard copy book, access card for e-book (same book) and iClicker code is available through UT bookstore. We will not use iClicker in this class.
E-book can be also purchased here: https://www.vitalsource.com/custom/9781319291709

TECHNOLOGY REQUIREMENTS, SKILLS, AND PRIVACY POLICIES
Please view the technology considerations for this course, including technical skills needed, general technology requirements, and technology privacy policies.

Browser Check Page
Students need to have access to a properly functioning computer throughout the semester. The Browser Check Page http://www.utoledo.edu/dl/helpdesk/browser-check.html will enable you to perform a systems check on your browser, and to ensure that your browser settings are compatible with Blackboard, the learning management system that hosts this course.

Software
Student computers need to be capable of running the latest versions of plug-ins, recent software and have the necessary tools to be kept free of viruses and spyware. The computer needs to run the following software, available in the UT Online Download Center.
• Word Processing Software
• Adobe Acrobat Reader
• Java Plugin Console
• Adobe Flash Player
• Adobe Shockwave Player
• Google Chrome Browser – recommended

Internet Service
High-speed Internet access is recommended, as dial-up may be slow and limited in viewing lectures, downloading information and completing online homework and tests. This course does contain streaming audio and video content.

Use of Public Computers
If using a public library or other public access computer, please check to ensure that you will have access for the length of time required to complete tasks and tests. A list and schedule for on-campus computer labs is available on the Open Lab for Students webpage.

UT Virtual Labs
Traditionally, on-campus labs have offered students the use of computer hardware and software they might not otherwise have access to. With UT’s Virtual Lab, students can now access virtual machines loaded with all of the
software they need to be successful using nothing more than a broadband Internet connection and a web browser. The virtual lab is open 24/7 and 365 days a year at VLAB: The University of Toledo's Virtual Labs.

Technical skills
To succeed in this course it will be important for learners to possess the following technical skills:
1. Rename, delete, organize, and save files
2. Create, edit, and format word processing and presentation documents
3. Convert text and graphical files into .pdf format
4. Copy, paste, and use a URL or web address
5. Download and install programs and plug-ins
6. Send and receive email with attachments
7. Locate and access information using a web search engine
8. Use a learning management system (Blackboard)

Learner Technical Support can be found here http://www.utoledo.edu/dl/students/learnersupport.html

ACCESSIBILITY OF COURSE TECHNOLOGIES
Please view Accessibility of Course Technologies for information regarding the accessibility of Blackboard and other technologies used in this course.

ACADEMIC POLICIES
Academic Honesty
You are urged to refer to the university’s policy on Academic Honesty at http://www.utoledo.edu/dl/students/dishonesty.html. Violation of this policy can result in a course grade of F with additional university sanctions possible. You will be required to read and agree to follow class policy during the first week of classes.

Examination Policy
Examination dates are given on the schedule. Exams will be conducted online within ALEKS homework system. Midterm exams will take approximately 1-2 hours and comprehensive final exam will take 2-3 hours of your time. Each exam will be available for 24 hours, you will be allowed to use the book and your notes and there will be no time limit (before the deadline). All exam scores will be included in your grade calculation. Make-ups for the exams will only be given to students who miss an exam under the conditions listed below.
- Students who will not be able to take an exam during scheduled time due to an irresolvable conflict with a major responsibility must provide some written documentation to verify the conflict. This situation may occur for student on official university business, including athletes. Approval must be obtained at least 7 days before the scheduled test date. The exam will be given at another arranged time.
- Students who cannot take an exam due to illness, car accident or similar extreme circumstance should inform their instructor of their difficulties as soon as possible. These difficulties must also be documented by a physician’s note, an accident report, etc. Absences due to COVID-19 quarantine or isolation requirements are considered excused absences. You should notify me as soon as possible if you are in quarantine or isolation and these absences may not require written notice.

You may use a calculator during the exams, it has to be non-graphical and non-programmable. The following calculator models are prohibited for use during exams: all TI Pro models (e.g., TI-30X Pro, TI-36X Pro), TI-College Plus, TI-36X II, Casio
fx-991ES, Casio fx-115, and other programmable models. Use of graphical and programmable calculators and cell phones is not allowed during exams; these items may be confiscated during and for the duration of the exam.

**Extensions, make ups or late assignments**

Exam make up will only be provided if an absence is deemed excusable (see examination policy above). Missed exam must be taken not later than 2 weeks after its scheduled day and not later than last week of classes.

**2) ALEKS** extensions for missed or late assignment will be provided over semester. If you need more extensions, please provide a doctor note or other documented excuse. You need to request an extension within two weeks after the due date. It is highly recommended that you complete all ALEKS assignments on time.

**Writing assignment or quiz** (required or extra credit): an extension may be requested within the *two weeks period* after the due date. No documentation is required.

The comprehensive list of academic policies that pertain to you in this class and throughout your academic journey is listed here: [http://www.utoledo.edu/policies/academic/undergraduate/](http://www.utoledo.edu/policies/academic/undergraduate/).

**COURSE EXPECTATIONS**

You are required to work **regularly 6-9 hours per week** throughout the semester. **All assignments have deadlines.** The work includes:

a) Reading the book and watching the recorded lectures using provided lecture notes as a reference;
b) Complete online homework (ALEKS) including assessments;
c) Complete and submit writing assignments;
d) Take the midterm and final online exams

If you need extra help, email your instructor at any time. You will not be graded or judged based on the questions that you ask! Seek online help in the **Chemistry Help Center** and in **LEC center**, links are provided on Blackboard.

**COMMUNICATION GUIDELINES**

As your instructor, I am here to help, and will do my best to respond to your email quickly. **Please include the course section number in the email subject line.** Students are expected to check their UT email account frequently for important course information. Feedback on assignments will be posted within 1 week after the due date, unless otherwise noted. In addition, if you are having difficulty in the course or trouble understanding any aspect of it, please let me know as soon as possible. I would be happy to arrange a time to meet with you virtually if you feel that you have questions that would best be answered in real-time. Please email first to make an appointment. I want you to be successful in this course, so **let's work together!**

Covid-19 pandemic and recent political and social events have caused fear, stress, and pain in many of us. Under these circumstances, it is completely normal to feel overwhelmed or anxious, and to have difficulty concentrating. I have designed this course with these challenges in mind, and I am committed to continuing to work with all of you to create a positive and supportive learning environment throughout the term. If your health, well-being, or school work are being impacted by recent events, I encourage you to contact me and make use of the resources University of Toledo provides, which I have included in this syllabus.

**Netiquette**

It is important to be courteous and civil when communicating with others. Students taking online courses are subject to the communication regulations outlined in the Student Handbook. To ensure your success when communicating online,
take time to familiarize yourself with the “dos” and "don'ts" Internet etiquette at https://www.utoledo.edu/dl/students/netiquette.html.

OVERVIEW OF COURSE GRADE ASSIGNMENT

Midterm Grading
Midterm grades are assigned on the 8th week of class and are used to assist students with determining their academic standing. ‘Attendance’ is also recorded during the 8th week to meet state and federal laws regarding financial aid disbursement. As we do not meet in the classroom, your online class activity (ALEKS homework) will be used to report your 'attendance' in this class. Please note, if you are not attending class it could affect your financial aid (scholarships, grants, loans or Federal Work Study). If you decide you are not going to attend this class (or any other class you have registered for), you must formally withdraw (drop) from the course.

Your midterm grade will be calculated as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALEKS homework (objective completion)</td>
<td>100 pts</td>
</tr>
<tr>
<td>Midterm exam in ALEKS</td>
<td>150 pts</td>
</tr>
<tr>
<td>Writing assignments on Blackboard</td>
<td>15 pts</td>
</tr>
<tr>
<td>Preterm Quiz on Blackboard</td>
<td>6 pts</td>
</tr>
</tbody>
</table>

TOTAL 271 pts

Answering all questions in **preterm quiz and committing to follow class rules** are required during the first week of classes.

Final Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALEKS homework</td>
<td>200 pts</td>
<td>33.1%</td>
</tr>
<tr>
<td>Midterm exam in ALEKS</td>
<td>150 pts</td>
<td>24.8%</td>
</tr>
<tr>
<td>Comprehensive final exam in ALEKS</td>
<td>200 pts</td>
<td>33.1%</td>
</tr>
<tr>
<td>Writing assignments on Blackboard</td>
<td>35 pts</td>
<td>5.7%</td>
</tr>
<tr>
<td>Quizzes on Blackboard</td>
<td>22 pts</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

TOTAL 607 pts 100%

The final score for ALEKS homework will be calculated according to the following:
Total objective completion score (100% = 100pts) + Pie completion score (100% = 100pts) = 200 pts.

It is a very high priority to me as your instructor to ensure fairness and equity in all grading aspects of the course. Anyone who has the prerequisites for this course and effectively studies the material can achieve a reasonable level of achievement and therefore an acceptable grade, i.e., a C or above. I **don't curve** grades, so every one of you can achieve the grade you are willing to earn!

Midterm exam will cover the material listed in the schedule below, the final exam is comprehensive and includes all of the material studied in class during the semester. All exams will be conducted online within ALEKS homework system.

**Grade Scale:** these are the minimum percentages and total number of points needed to receive the indicated grade

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93%</td>
<td>565 pts</td>
</tr>
<tr>
<td>A-</td>
<td>90%</td>
<td>546 pts</td>
</tr>
<tr>
<td>Grade</td>
<td>Minimum Percentage</td>
<td>Minimum Points</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>B+</td>
<td>87% or 528 pts</td>
<td>B</td>
</tr>
<tr>
<td>C+</td>
<td>77% or 467 pts</td>
<td>C</td>
</tr>
<tr>
<td>D+</td>
<td>67% or 407 pts</td>
<td>D</td>
</tr>
<tr>
<td>F</td>
<td>&lt;60% or &lt;364 pts</td>
<td></td>
</tr>
</tbody>
</table>

A grade of C (73% or 443 pts) or above AND attendance at the final exam are needed to enter CHEM 1230. If your grade in CHEM 1090 is C- or lower, you must repeat CHEM 1090 before continuing to CHEM 1230.

A course grade of **Incomplete** can be given only to those who have completed all but a very small percentage of course requirements (usually final exam only) for an acceptable reason. The **Incomplete** must be removed before you take CHEM 1230.

**UNIVERSITY POLICIES**

Policy Statement on Non-Discrimination on the Basis of Disability (ADA)
The University is an equal opportunity educational institution. Please read [The University’s Policy Statement on Nondiscrimination on the Basis of Disability Americans with Disability Act Compliance](https://www.utoledo.edu/title-ix/policies.html).

**Academic Accommodations**
The University of Toledo embraces the inclusion of students with disabilities. We are committed to ensuring equal opportunity and seamless access for full participation in all courses. For students who have an accommodations memo from Student Disability Services, I invite you to correspond with me as soon as possible so that we can communicate confidentially about implementing accommodations in this course. For students who have not established affiliation with Student Disability Services and are experiencing disability access barriers, or are interested in a referral to healthcare resources for a potential disability, or would like information regarding eligibility for academic accommodations, please contact the Student Disability Services Office, (419.530.4981, StudentDisability@utoledo.edu).

**Your safety and well-being** is very important; please take a minute to review Title IX, the Student Code of Conduct and other policies that apply to you as a student of the University: [https://www.utoledo.edu/title-ix/policies.html](https://www.utoledo.edu/title-ix/policies.html).

**ACADEMIC AND SUPPORT SERVICES**

**Course scheduling assistance**: Chemistry Department Secretary, Ms. Samples, office BO 2022, telephone 419-530-2698, email: Pamela.Samples@utoledo.edu. If you have further questions or if you need assistance, please contact her. She takes care of all scheduling changes.

**Chemistry Help Center** is a great place to receive online assistance. It is generally open all day Monday through Friday & evenings Monday through Thursday. No appointment is necessary. Follow this link: [https://us.bbcollab.com/guest/ce2a41f345ed4e9d939dd6e7b0ef0c63](https://us.bbcollab.com/guest/ce2a41f345ed4e9d939dd6e7b0ef0c63).

**Tutoring support** for all UT students is available through the Learning Enhancement Center which also works online this semester. Links are provided on Blackboard.

**Supplemental Instruction (SI)** is a student assistance program offered through First Year Experience support. Advanced students provide several structured study sessions on the material each week. Your participation is optional—though strongly encouraged. There are no points assigned for attendance of SI sessions in this class. All sessions will be conducted online.

**Instructor Office Hours Online** are times when you can join Blackboard Collaborate with questions about the course material. My office hour times are listed at the top of the syllabus. Please send a brief email first.
SAFETY AND HEALTH SERVICES FOR UT STUDENTS
Please use the following link to view a comprehensive list Campus Health and Safety Services available to you as a student.

SPECIAL COURSE EXPECTATIONS DURING COVID-19 PANDEMIC
The University of Toledo has a missed class policy. Absences due to COVID-19 quarantine or isolation requirements are considered excused absences. You should notify me if you are in quarantine or isolation and these absences may not require written notice. I also ask that you keep me informed of concerns you may have about the class, completing course work/assignments timely and/or health concerns related to COVID.

Please also know that we recognize the COVID-19 situation has placed additional burdens on many of our students. If, at any point in the semester, you experience difficulties meeting your basic needs, managing your different responsibilities, or maintaining your physical or mental health, we have a variety of resources that can help. Please review and utilize our Student Success resources and let me know if you have any questions.

STUDENT LEARNING OUTCOMES
Upon completion of this course, the student will be able to:
1. Classify matter into types
2. Write the symbols and names for common elements
3. Use dimensional analysis to do unit conversions and solve problems that use exponential notation
4. Use the correct number of digits to indicate the precision of a measurement or a calculated result
5. Solve problems that use density, mass, volume, temperature, energy, wavelength, moles, atomic and molar masses, percent composition, the empirical and molecular formulas, including stoichiometry problems
6. Explain the atomic structure using subatomic particles
7. Write full and abbreviated electron configurations for the elements; identify shell, subshell, and orbitals using quantum numbers
8. Draw energy diagrams for atoms and ions
9. Interpret and write the chemical formulas and names of ionic and covalent compounds
10. Draw electron dot (Lewis) diagrams for atoms and molecules
11. Balance chemical equations and predict the products of the reaction
12. Write net ionic equations for reactions in aqueous solution and to interpret such equations

COURSE SCHEDULE is listed on the next page
## COURSE SCHEDULE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATES</th>
<th>TOPIC</th>
<th>LEARNING OUTCOME(S)</th>
<th>ALEKS assignments</th>
<th>ASSIGNMENTS DUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/17-8/23</td>
<td>Introduction, Math prerequisite</td>
<td></td>
<td>Initial assessment (Â)</td>
<td>Preterm quiz and writing assignment (WA) #1 – Introduce yourself! (required)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Objective 1 (Math, Ch.2.2) due Sun., 8/23</td>
<td>on Bb due Sunday, 8/23</td>
</tr>
<tr>
<td>2</td>
<td>8/24-8/30</td>
<td>Ch.1: Basic Concepts</td>
<td>1-2</td>
<td>Objective 2 (Ch. 1) due Sun., 8/30</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>8/31-9/6</td>
<td>Ch.2: Measurement</td>
<td>3-5</td>
<td>Objective 3 (Ch. 2.1, 2.3-2.6) due Sun., 9/6</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>9/8-9/13</td>
<td>Ch.3 &amp; 4: Atoms and Atomic Masses, Electronic Configuration</td>
<td>5-6</td>
<td>Objective 4 (Ch. 3, 4.1) due Sun., 9/13</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>9/14-9/20</td>
<td>Ch.4: Electronic Configuration</td>
<td>5, 7-8</td>
<td>Objective 5 (Ch. 4.2-4.8) due Sun., 9/20</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>9/21-9/27</td>
<td>Ch.5: Chemical Bonding</td>
<td>9-10</td>
<td>Objective 6 (Ch. 5) due Sun., 9/27, Â</td>
<td>WA#2 over Ch.4 (required) due Monday, 9/21</td>
</tr>
<tr>
<td>7</td>
<td>9/28-10/4</td>
<td>Review</td>
<td>1-10</td>
<td>Open pie due Sun., 10/4</td>
<td><strong>MIDTERM EXAM (Ch. 1-5) is on Wed., 9/30</strong></td>
</tr>
<tr>
<td>8</td>
<td>10/5-10/11</td>
<td>Ch.6: Nomenclature</td>
<td>9</td>
<td>Objective 7 (Ch. 6) due Sun., 10/11</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>10/12-10/18</td>
<td>Ch.7: Formula Calculations</td>
<td>5</td>
<td>Objective 8 (Ch. 7) due Sun., 10/18</td>
<td>Nomenclature <strong>QUIZ</strong> on Bb (required) due Mon.,10/12</td>
</tr>
<tr>
<td>10</td>
<td>10/19-10/25</td>
<td>Ch.8: Chemical Reactions</td>
<td>11</td>
<td>Objective 9 (Ch. 8) due Sun., 10/25</td>
<td>WA #3 over Ch.7 (extra credit) due Mon., 10/19</td>
</tr>
<tr>
<td>11</td>
<td>10/26-11/1</td>
<td>Ch.8: Chemical Reactions</td>
<td>11</td>
<td>Objective 10 (Ch. 8) due Sun., 11/1</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>11/2-11/8</td>
<td>Ch.8 &amp; 9: Chemical Reactions, Net Ionic Equations</td>
<td>11-12</td>
<td>Objective 11 (Ch. 8-9) due Sun., 11/8</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>11/9-11/15</td>
<td>Ch.10: Stoichiometry</td>
<td>5</td>
<td>Objective 12 (Ch. 10.2) due Sun., 11/15</td>
<td><strong>WA #4 over Ch.8-9 (required + extra credit) due Mon., 11/9</strong></td>
</tr>
<tr>
<td>14</td>
<td>11/16-11/22</td>
<td>Ch.10: Stoichiometry</td>
<td>5</td>
<td>Objective 13 (Ch. 10) due Sun., 11/22, Â</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>11/23-11/29</td>
<td>Review</td>
<td>1-12</td>
<td>Open pie due Sun., 11/29</td>
<td>WA #5 over Ch.10 (extra credit) due Mon., 11/23</td>
</tr>
<tr>
<td>16</td>
<td>11/30-12/6</td>
<td>Final week</td>
<td>1-12</td>
<td>Open pie due Wed., 12/2</td>
<td><strong>FINAL EXAM (Ch. 1-10) is on Tues., 12/1</strong></td>
</tr>
</tbody>
</table>

Â is an ALEKS assessment  
WA is writing assignment; submit by posting .pdf file on Blackboard  
**MAKE SURE THAT YOUR TRAVEL AND EMPLOYMENT PLANS DO NOT CONFLICT WITH THIS SCHEDULE!**