

CHEM 1300 Introductory Chemical Principles
Section 001 MWF 1:00 PM – 1:50 PM (SH 100)**Instructors:**

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Office Hours are **Monday and Wednesday from 10:00 AM to 10:50 AM** or by appointment.

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Course Description: This course provides a background in fundamental chemical mathematics, in writing and understanding chemical formulas and equations, and in the application of scientific laws to the behavior of matter. This course is designed for the student with little or no previous chemical training who intends to take the CHEM 1441/1442 sequence at a later date.

Required Materials:

- 1) The paperback textbook is “*Introduction to Chemical Principles* (11th edition)” by H. Stephen Stoker, Prentice Hall (2013: ISBN-13: 978-0321814630).
- 2) Access to the online homework system: ALEKS (www.aleks.com). The access is free of charge. Registration information is sent to you via email. Also, the information is available in the UTA Blackboard course site (<https://elearn.uta.edu>).
- 3) A non-programmable and non-graphing scientific calculator: **Texas Instruments TI-30Xa** is recommended. This calculator has all the functions you need and relatively in-expensive. You cannot use programmable and/or graphing calculator for exams of this course. **Note that TI-36X Pro is NOT allowed.**

Course Prerequisites: This course is designed for the student with little or no previous chemistry training who intends to take CHEM 1441/1442. All students should have completed MATH 1302 or its equivalent. CHEM 1300 cannot replace CHEM 1441/1442/1451/1465 for major credit toward a degree in chemistry.

Student Learning Outcomes: (More detailed learning objectives are given in separate handout available in Blackboard course sites.) Upon completing the course, the student should

- 1) understand fundamental chemical concepts, including atomic and molecular structure, chemical bonding, some chemical reactions, the relationship of the electronic structure of elements to the periodic table, and periodic physical and chemical properties of elements and compounds;
- 2) perform quantitative calculations related to chemical stoichiometry, the behavior of gases, and enthalpy changes; and
- 3) be prepared to enter Chemistry 1441.

Attendance Policy: Attend **every** lecture. A very strong correlation exists between attendance and success in Chemistry 1300. Because the topics covered in this course build on each other, missing even one class can mean the difference between success and failure in the course. You must sign on the attendance sheet in class if you attend a class. **FALSIFYING YOUR ATTENDANCE, THAT INCLUDES LEAVING A CLASS BEFORE CLASS ENDS, IS CONSIDERED ACADEMIC DISHONESTY AND PROSECUTED AS SUCH.**

Expectations for Out-of-Class Study: Spend the necessary amount of time studying chemistry. The rule of thumb for succeeding in Chemistry is three hours of study for every hour of lecture. Since you have 3 hours of lecture per week, this means that at a minimum you should plan to study Chemistry 9 hours each week independently.

Other Requirements:

- 1) A student must familiarize herself/himself with all requirements and policies **in this course of the current semester.**
- 2) Prior to class, read the chapter which will be covered in lecture.
- 3) Review your lecture notes after each class. Correct obvious errors and note topics which require further study or clarification.
- 4) Work **all** of the homework problems. Do **not** look in the solutions manual until you have given your **best** effort to solve the problem on your own. **Practice the problems that you could not solve until you could solve them without solutions. This is the one of the most effective strategies that you could do to prepare for exams.**
- 5) Don't procrastinate. These concepts take time to sink in, and you may have to practice these exercises over a period of many days in order master the necessary skills.

Tentative Lecture Schedule:

The following represents a *tentative* schedule of lectures and examination material for this semester. Tentative exam dates are specified in **bold** and underlined. The exact dates of the six midterm exams will be announced in class. All due date of homework assignments are available directly on its website. You will be responsible for checking them and completing them by the due dates. **As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. Note that the Final Exam is scheduled for Monday, December 8 from 11:00 AM to 1:30 PM. Make sure to save this date because no make-up final exam will be given.**

Date		Lecture Material (See Reading Assignments below this table)
August	22	Course Orientation; Begin Unit 1
	25, 27, 29	Unit 1: Math for Chemistry
September	1, 3, 5	Finish Unit 1, Exam 1 on Unit 1
	8, 10, 12	Unit 2: Dimensional Analysis
	15, 17, 19	Finish Unit 2, Exam 2 on Unit 2
Sept/Oct	22, 24, 26	Unit 3: Atoms, Molecules, Ions, and Ionic Compounds
	29, 1, 3	Finish Unit 3, Exam 3 on Unit 3
	6, 8, 10	Unit 4: Mole and Molar Mass
October	13, 15, 17	Finish Unit 4, Exam 4 on Unit 4
	20, 22, 24	Unit 5: Chemical Reaction & Stoichiometry Problems
	27, 29, 31	Finish Unit 5, Exam 5 on Unit 5
November	3, 5, 7	Unit 6: Aqueous Solution Chemistry
	10, 12, 14	Finish Unit 6, Exam 6 on Unit 6
	17, 19, 21	Unit 7: Atomic Structure and Lewis Structure
December	24, 26, 28	Continue Unit 7
	1, 3	Finish Unit 7
	8	Comprehensive Final Examination.

Reading Assignments in the Textbook

Unit 1: Chapter 2 all Sections.

Unit 2: Chapter 3 all Sections.

Unit 3: Chapter 4 all Sections, Chapter 5 all Sections, Chapter 6 Sections 1 and 2, and Chapter 8 all Sections.

Unit 4: Chapter 9 all Sections.

Unit 5: Chapter 10 all Sections.

Unit 6: Chapter 13 Sections 1 – 4, Chapter 14, Sections 1, 6 and 7 and Chapter 15 Sections 1 – 3.

Unit 7: Chapter 6 Sections 3 – 11 and Chapter 7 Sections 1 – 16.

Important Dates

September 01	Labor Day Holiday
September 08	Census Date
October 29	Last Day to Drop Classes (Please review UTA's Drop Policy in Undergraduate Catalog.)
November 27 and 28	Thanksgiving Holidays
December 08	Final Exam from 11:00 AM to 1:30 PM

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Resources

1) **The Chemistry Clinic** is located in Room 318 Science Hall and will be staffed with tutors available to answer your questions related to lecture and homework. Hours of the Chemistry Clinic will be announced on the front door of Room 318 SH. This service is free for students enrolled in Chemistry 1441.

2) **University College** is located in 205 Ransom Hall and offers free academic support for qualifying students and low-cost services for all students, including Cost Share Tutoring.

Grading: The grade in this course will be determined in the following manner.

Online Homework	20%
6 Mid-term Exams	60%
Comprehensive Final Exam	20%

1) (**Make-up Exam Policy**) No make-up exams will be given, and any missed exams will result in a grade of zero. However, the final exam score will replace the lowest score among Exam 1 – 6 if it is to the student's benefit. For example, if you miss one of mid-term exams (Exam 1 through Exam 6), then the score of the missed exam will be replaced by the final exam score. Final exam score will not be replaced.

2) There will be no curving on exams or no extra credit assignments in this course to a specific student.

3) All grades are calculated by rounding them off to two decimal places: If the digit to be removed is less than five, then it is rounded down. If the digit to be removed is equal to or larger than five, then it is rounded up. For example, if your calculated final grade is 89.56498..., then your final grade is 89.56. Grades will be assigned according to the following scale.

<u>Total Numerical Grade</u>	<u>Letter Grade</u>
90 and above	A
80-less than 90	B
70-less than 80	C
60-less than 70	D
Below 60	F

Major Assignments and Examinations

Seven exams will be given. These exams will cover the reading, lecture material, homework, and assigned problems. Six mid-term exams (Exam 1 through Exam 6) will be administered in class period. The final exam will be **comprehensive** and will be given in two and a half hours. Web-based homework problems will be assigned and graded. More information (Registration, Login and Grading Policy) about the online homework system will be given in the Blackboard course site. None of homework assignments will be dropped. All due dates for homework assignments are directly available on the online homework site. You will be responsible for checking them and completing them by the due dates.

Examination Needs

You must bring the following to each examination.

- 1) Scientific Calculator (You may **not** use a graphing calculator or a calculator capable of storing alpha-numeric/textual material).
- 2) No. 2 pencils with eraser.
- 3) NCS Answer Sheet 4521, available at the UTA Bookstore (or, an answer form specified by your instructor).
- 4) UTA Student ID Card.
- 5) Students are NOT allowed to have access to digital pagers or cell phones during any exam.

Blackboard

Students are regularly responsible for checking the blackboard course website (<https://elearn.uta.edu/>) as well as their UTA email (the one ending in "mavs.uta.edu") for correspondence and announcements related to the course. Instructional materials (videos, activity sheets, study guides, etc.) will be posted on the course website.

Other Course Policies

Cell Phones and Pagers (or any un-necessary electronic gadgets) : Please silence all cell phones and pagers prior to class.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/aao/fao/>).

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only

those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX: The University of Texas at Arlington is committed to upholding U.S. Federal Law “Title IX” such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit www.uta.edu/titleIX.

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents’ Rule* 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located **at the front/back of the room**. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

<p>Emergency Phone Numbers: In case of an on-campus emergency, call the UT Arlington Police Department at 817-272-3003 (non-campus phone), 2-3003 (campus phone). You may also dial 911.</p>

This course satisfies the University of Texas at Arlington core curriculum requirement in life and physical sciences. The italicized student learning outcomes required of core courses below will be assessed for each student. The signature assignment (described below) will be used to determine how a student has mastered critical thinking, communication, and empirical and quantitative skills.

The Core Objectives and the Component Areas:

- 1) *Critical Thinking Skills*: To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
- 2) *Communication Skills*: To include effective development, interpretation and expression of ideas through written, oral and visual communication.
- 3) *Empirical and Quantitative Skills*: To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
- 4) *Teamwork*: To include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

The Signature Assignment in CHEM 1300 will be a written report for questions about the properties of one element you choose from the periodic table. The completion of the assignment will credit the extra points of 2% toward the final grade. This assignment satisfies the four Core Curriculum Objectives in the following ways:

- 1) *Critical Thinking Skills*: You must conduct research to gather data, calculate the atomic mass by using their data, and then critically explain and justify their findings and numerical answers.
- 2) *Communication Skills*: You will submit a written lab report for this assignment.
- 3) *Teamwork*: You will work in conjunction with a partner for this assignment.
- 4) *Empirical and Quantitative Skills*: You will find data for the mass and the natural abundance of an element they choose. They will calculate the atomic mass by using the data.