



Department of Chemistry

Freshmen Chemistry Programs

General Chemistry 1 and 2 (CHEM 1402 and CHEM 1403) are foundation level courses designed for science majors, engineers, pre-medical, pre-pharmacy and pre-veterinarian majors.

Students in Nursing or other health science fields that require only eight hours of chemistry should take CHEM 1400 and CHEM 1401 - Fundamental Chemistry 1 and 2. These classes are a survey of General, Organic and Biochemistry and students who complete them may take the CHEM 2450 Organic Chemistry Short Course, but not other upper level chemistry courses.

CHEM 1409 - Chemistry and Society is a laboratory science course for non-science majors.

Why we give a placement exam

The UALR Department of Chemistry is committed to the success of all our students. To insure that students have an adequate background, passing a placement exam prior to being able to register for CHEM 1402 is required. Because CHEM 1402 assumes prior knowledge of chemistry acquired through high school and/or a college preparatory course like CHEM 1300, students lacking this knowledge are at a severe disadvantage and tend not to successfully complete CHEM 1402. Students who do not pass the placement exam are tracked into CHEM 1300 where they are taught the basic chemistry and algebra skills required to succeed in CHEM 1402. Students who pass CHEM 1300 with a grade of C or better students will be allowed to register directly into CHEM 1402 the following semester.

Administration of the Placement Exam

The placement exam is electronically administered and graded. There are 20 questions and you have 40 minutes to complete the exam. You need to bring your UALR T number, a legal picture ID, pencil and eraser. You will be provided with scrap paper, a periodic table and a **TI-30XA calculator**. Please note that it is the policy of the Department of Chemistry not to allow programmable calculators in freshmen level exams. More information on the calculator can be found at:

http://education.ti.com/educationportal/sites/US/productDetail/us_ti30xa.html

Exam dates and locations will be posted on the department website, **<http://ualr.edu/chemistry>**. Further information can be obtained from the chemistry front office at 501-569-3152.

How to prepare for the placement exam

You will only be given one attempt each semester to take the placement exam and are advised to come prepared. The department does not offer tutors to assist you in preparing for the placement exam and your performance does not appear on your transcript or contribute toward any earned grade at UALR. This brochure provides you with a list of the competencies covered in the placement exam and it is suggested that you review a general chemistry text and/or take advantage of free web based resources in preparing for the exam.

You need to know how to use a TI-30XA calculator and you need to familiarize yourself with the calculator prior to the exam as the exam proctors are not in a position to provide assistance with the use of the calculator. Information on operation of these calculators can be found at:

<http://faculty.matcmadison.edu/kmirus/Textbooks/804379Text/Calculators.html>

http://www.saskapprenticeship.ca/siteimages/Calculator_Instructions_for_TI.pdf

Competencies you should know before taking the placement exam

- Convert numbers from decimal form to scientific notation
- Use a calculator to add, subtract, multiply and divide scientific notation numbers
- Be able to do the following concerning significant figures
 - Identify the number of significant figures for a given number
 - Report an answer to the correct number of significant figures when measured numbers are:
 - Added or subtracted
 - Multiplied or divided
 - A mixture of the above
- Basic math skills, such as:
 - addition, subtraction, multiplication and division
 - Basic algebra skills such as being able to rearrange equations to solve for an unknown variable
 - Basics of exponents and how to add, subtract, multiply and divide exponential numbers
 - Basics of logarithms
 - How to use a calculator to:
 - Calculate exponential numbers
 - Root functions (calculating squares, cubes, etc..)
 - Log functions
 - Basics of fractions and percentages and how use them to do simple conversions
 - Basics of inequalities
 - Dimensional analysis to do the following:
 - Convert a single unit to another single unit
 - Convert a dual unit (such as g/mL) to another dual unit
 - Convert squared or cubic unit (such as cm^2 or cm^3) to another squared or cubic unit
- Common elements and their associated symbol
- Nomenclature of simple ionic and covalent compounds
- Use Avogadro's number in calculations to determine the number of atoms, ions, compound in a given number of moles
- Molar mass and how to use it to convert from grams to moles, or moles to grams of a substance
- How to calculate empirical formulas from percent masses of elements in a compound
- Balance chemical equations
- Stoichiometry, how to convert from moles of a substance in a balanced equation to moles of another substance
- Convert between degrees Celsius and degrees Fahrenheit