

Class Concept

This is the most advanced level of professional chemistry work requiring an application and in-depth understanding of chemical methods, chemical theory and the principles of related sciences, to evaluate, develop, conduct and interpret the results of the most complex qualitative and quantitative chemical analyses on a wide variety of substances. Employees usually operate under very limited or no technical direction with broadly defined objectives and functions. Employees may often determine their own projects, priorities and deadlines and function as a technical expert or master in a specialty area. Work requires very extensive interpretation and analysis and could contribute to altering established concepts, theories, objectives or agency policy, including the development of new methodology and techniques. Employees evaluate, select, arrange, modify and develop complex laboratory equipment and elaborate instrumentation to implement the most complex testing operations. Methods, procedures and tests performed include a wide ranging combination of titration, gravimetric, volumetric, colorimetric, IR, UV and visible spectroscopy, inductively coupled plasma (ICP) emission spectroscopy, robotic measurements of pH, digestions, extractions and other documented methods and tests including the more complex procedures such as atomic absorption spectroscopy, mass spectroscopy, segmented flow injection analysis or gas, liquid, ion or thin layer chromatography. Employees must be able to troubleshoot complex analytical instrumentation. Employees work with the most difficult and complex samples which are usually in very minute or hard to work with concentrations, and often have substances that mask, react or interfere with the reagents or with each other during analysis. Work may include providing work direction and review to lower level chemists and technicians; programming computerized test instruments; evaluating new equipment and methods; recommending the purchase and application of equipment; maintaining chain of custody of samples and equipment; and testifying in court or at hearings as a technical expert. Employees may be required to perform other duties and responsibilities as assigned.

Recruitment Standards

Knowledge, Skills, and Abilities

- Thorough knowledge of the principles, concepts, theories, reference sources and laboratory applications of analytical chemistry and other related sciences.
- Considerable knowledge of the laws, regulations and agency policies governing responsibilities. Considerable knowledge of scientific methodology and of laboratory safety practices.
- Ability to independently perform and record the most complex standardized, non-standardized and developmental laboratory tests, procedures and analyses.
- Ability to analyze results, interpret and evaluated methodology, understand and solve very complex theoretical problems, and to provide work direction and instruction to technicians and lower level chemists.
- Ability to express technical information clearly, both orally and-in writing, when reporting results testifying or explaining procedures to others.
- Ability to perform advanced mathematics and statistical analysis, to understand and follow very complex oral and written instructions, to perceive colors normally and to make olfactory distinctions, and the ability to establish and maintain effective working relationships.

Minimum Education and Experience

Bachelor's degree in chemistry from an appropriately accredited institution and four years of progressive chemistry laboratory experience; or an equivalent combination of education and experience.

Note: This is a generalized representation of positions in this class and is not intended to identify essential functions per ADA.