

Advance Chemistry Courses Offered at Spelman College

- Inorganic Chemistry
- Medicinal Chemistry
- Instrumental Analysis
- Advanced Biochemistry
- Laser, Optics, and Spectroscopy (Physics)
- Natural Products
- Environmental Toxicology (Environmental)

Advance Chemistry Courses Offered in the AUC

CHE 421 – Advanced Inorganic Chemistry (Morehouse, 4)

Rigorous treatment of the chemistry of inorganic compounds, including structure, properties and reactions, and their interpretation in terms of quantum chemistry and group theory.

Prerequisite: CHE 322/322L. Lecture, 3 hours per week. Laboratory and lab lecture, 6 hours per week.

CHE 422 – Instrumental Analytical Chemistry (Morehouse, 4)

Chemical analysis based on the use of modern instruments. Emphasis is placed on quantitative analysis of materials using spectroscopic, electrochemical, magnetic and chromatographic techniques. *Prerequisite: CHE 322/322L. Lecture, 3 hours per week. Laboratory and lab lecture, 6 hours per week.*

CHE 423, 424 – Advanced Physical Chemistry (Morehouse; 3,3)

Theoretical principles of modern physical chemistry. Fundamental principles of quantum mechanics, statistical mechanics, angular momentum and group theory. Applications.

Prerequisite: CHE 322/322L. Recommended: PHY 361. Lecture, 3 hours per week. Laboratory and lab lecture, 6 hours per week.

CHE 437 – Instrumental Methods in Atmospheric Chemistry (Morehouse, 4)

An introduction to the chemistry and dynamics of atmospheric processes, the spectroscopy of atomic and molecular species, the photodynamics and photokinetics resulting from photochemical processes, and the instrumental techniques used in obtaining basic information about chemical processes in the atmosphere. *Prerequisite: CHE 322/322L. Lecture, 3 hours per week. Laboratory and lab lecture, 5 hours per week.*

CHE 471, 472 – Advanced Organic Chemistry (Morehouse, 3)

Provides a deeper understanding of the structure of organic compounds and the mechanisms of organic reactions. The three main broad topics are structure, dynamics, and synthesis. The quantum mechanical basis for aromaticity is carefully examined, and the concept of the duality of (competing) mechanisms is treated in some detail. *Prerequisite: CHE 322/322L. Lecture, 3 hours per week.*

CHE 421 – Advanced Inorganic Chemistry (Clark Atlanta University, 3)

This is an introduction to the descriptive chemistry of the elements. The topics covered in this course include: Brønsted and Lewis acids and bases, electronic and molecular structure and coordination chemistry. Prerequisites: CCHE 341/341L/341R, and CCHE 342/342L/342R. Lecture,

3 hours per week. Lab 1 hour per week.

CHE 431 – Advanced Organic Chemistry (Clark Atlanta University, 3)

This course is a study of the advanced topics in carbon chemistry. The topics covered include: Critical evaluation of modern organic theory mechanisms and rearrangements. It also includes a detailed study of important organic reactions and their application to selected laboratory experiments. Prerequisites: CCHE 231/231L/231R and CCHE 232/232L/232R. Lecture, 3 hours per week. Lab 1 hour per week.

CHE 480 – Special Topics in Chemistry (Clark Atlanta University, 4)

Detailed study of a series of advanced topics in any area of chemistry. Students undertake independent projects. Lecture, 3 hours per week. Lab 1 hour per week.