



# GENEVA COLLEGE

## *Department of Chemistry*

### MISSION

The Geneva College chemistry department exists to serve, educate and mentor students in the disciplines of chemistry and biochemistry. We seek for our students to develop a solid competence in the fundamentals of chemistry as defined by the guidelines for an approved program of the American Chemical Society. We also desire to instill an enthusiasm for the process of discovery and research and an awareness of the tremendous responsibility and the sense of awe that comes with understanding and managing the material aspect of God's creation.

### OVERVIEW

"He [Jesus Christ] is before all things, and in Him all things hold together." Colossians 1:16

In a larger sense, this verse captures the essence of the entire outlook of our chemistry department—Jesus Christ before all else, and all aspects of life unified in Christ. As chemists, we understand that His hand is "holding together" the very chemical bonds of molecules. Our goal as a department is to explore our mandate to be stewards of creation, and specifically, to recognize the hand of God in the intricate details of matter. The closer we look at what God has made, the more wonderful we find it to be.

### DISTINCTIVES

- American Chemical Society approved program since 1958
- Independent research and internship opportunities
- Geneva Society of Chemists - organization for students
- Recently renovated Roy W. Adams Chemistry Center in the Science & Engineering Building with well-equipped laboratories
- Distinct Christian approach to science

### CHEMISTRY MAJOR

Students who study chemistry explore the building blocks that compose our material world. Chemists study existing substances and work to create new substances in an effort to contribute to a better understanding and appreciation of our world. Chemistry is an exciting science that provides the foundation for other scientific disciplines. Geneva's chemistry major provides an American Chemical Society professionally-certified major that requires 46 major credits and a non-certified basic option

requiring 31 credits. The basic degree can be combined with a minor in fields such as criminal justice, business or biology. Students will complete a variety of courses covering organic and inorganic chemistry, biochemistry, quantitative analysis, physical chemistry and much more. Additionally, chemistry students gain extensive laboratory experience with additional opportunities for paid summer research or internships.

### CHEMICAL ENGINEERING

Chemical engineers utilize their specialized chemistry knowledge to discover and manufacture better plastics, paints, fuels, fibers, medicines, fertilizers, semiconductors, paper and other kinds of chemicals by carrying out chemical reactions and purifications. Chemical engineers find careers in environmental, materials, petroleum and biochemical engineering. Geneva's chemical engineering degree is a concentration within the B.S.E. degree in General Engineering that is administered by the Engineering Department. The Chemistry Department assists in administering this degree.

### BIOCHEMISTRY

The biochemistry major gives students the opportunity to supplement a solid foundation in chemistry with an emphasis in the rapidly growing field of biochemistry—the molecular understanding of life processes. For students wishing to attend medical school, to work in any field related to biotechnology or who wish to pursue graduate schooling in pharmacology or biochemistry, this concentration is excellent preparation. The curriculum includes a core of chemistry courses, a biochemistry laboratory course, two advanced biochemistry courses, cell biology and genetics. A capstone experience in carrying out a biochemical research project is a required part of this concentration.

### EDUCATION CERTIFICATION IN CHEMISTRY

Geneva students can achieve Pennsylvania educational certification to teach chemistry in high schools. Certification is reciprocal with most other states. Through the education department, Geneva offers classes to qualify students for certification requirements upon graduation. Courses for secondary education majors cover subjects such as technology, science education methods, assessments and exceptionalities in the classroom. Three field experiences in high school classrooms plus student teaching are required for this program.

## OUTCOMES

A wide range of career opportunities exist for students with training in chemistry or chemical engineering. Our graduates find employment in biochemical or chemical research and development, technical sales and customer support in industry, government jobs such as the FBI or the EPA, environmental chemical analysis, or in healthcare-related fields. Chemistry is a central science which provides a great foundation for many types of specialized careers such as forensic science, medicine, biomedical engineering, and pharmacology.

Our graduates have also been very successful in a variety of graduate schools. Recent graduates have attended Johns Hopkins University, Bucknell University, Duquesne University, the University of Pittsburgh, Clarkson University, and the University at Buffalo (SUNY). Our graduates have also been successful in medical school and allied health programs. Overall, our graduates, equipped with a faith perspective on the sciences, have a solid foundation for their calling in life and career.

## INTERNSHIPS

One of the best ways to bridge the academic and career worlds and to build a strong resume is to work in an internship or professional job during your college years. Recent internships have included:

- Schroeder Industries
- Merck Pharmaceuticals
- Siemens Environmental
- Michael Baker Corporation
- The Environmental Protection Agency
- Sensibility Soaps
- The Carnegie Science Center of Pittsburgh
- Academic Research Internships at Duquesne University, Kansas State University, University of Pittsburgh and Geneva's own summer research institute.

## OUR FACULTY

The department of Chemistry faculty are highly qualified and maintain active membership and connection in their discipline through professional memberships and conferences. Active in research, the chemistry department faculty maintain a current research interest and involve students in their work. Additionally, the faculty have diverse areas of academic experience, ranging from analytical, physical, organic and forensic chemistry. This diversity exposes students to a broad range of areas within the field of chemistry.

RODNEY AUSTIN (2005), Associate Professor of Chemistry; B.S., Mount Vernon Nazarene College; Ph.D., University of Cincinnati.

KERRY McMAHON (2004), Associate Professor of Chemistry; B.S., Geneva College; Ph.D., University of Connecticut.

JOHN W. STAHL (1985), Professor of Chemistry and Chair, Department of Chemistry; B.S., Geneva College; Ph.D., The Pennsylvania State University.

MELINDA R. STEPHENS (1998), Professor of Chemistry; B.S., Geneva College; Ph.D., University of Pittsburgh.



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