

# DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

Dr. Matthew Nee, Department Chair

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## Mission Statement

WKU Chemistry empowers students of all backgrounds to think critically about the molecular sciences and promotes a vibrant regional economy through training, public service, and industrial collaboration. We ignite a spirit of life-long learning through engaged classroom and laboratory instruction, hands-on experience in nationally recognized research, and direct mentoring by faculty. This enables our students to define their own career path and to make an impact both locally and globally.

Chemistry is often described as “The Central Science” in today’s technology-driven world. Chemistry plays an important role in the research, development, and quality assurance of products and materials ranging from pharmaceuticals and polymers to ceramics and nanocomposites. Knowledge and understanding of fundamental chemical concepts are crucial to success in professions such as medicine, pharmacy, veterinary medicine, forensic science, environmental science, engineering, medical laboratory science, physical therapy, nursing, patent and environmental law, and science education.

In order to best serve such a diverse audience, the chemistry curriculum at Western Kentucky University offers an integrated series of lectures and laboratory courses. Our courses provide students with grounding in theoretical models balanced with real-life applications and hands-on laboratory experiences. This allows students to achieve an understanding of chemical and physical phenomena at the molecular level and to develop the critical thinking skills necessary for chemical problem-solving. In addition to coursework, the Department of Chemistry provides our undergraduates with a wide variety of research opportunities from biochemistry to materials science. Research encourages students to continue building their laboratory skills and scientific knowledge while working one-on-one with a faculty member. Undergraduate research students often present their research at both regional and national professional meetings. The combination of lecture, laboratory, and one-on-one faculty interaction allows students to develop the skills necessary to be successful in their chosen profession.

As part of the educational experience, students are routinely trained in the operation of state-of-the-art instrumentation in the academic and research laboratories. The Department has extensive holdings of instrumentation, including atomic spectrometers, calorimeters, electrochemical analyzers, elemental analyzers, gas chromatographs, FTIR spectrometers, ion chromatographs, mass spectrometers, spectrofluorophotometers, UV-visible spectrophotometers, a Nd-YAG laser system, a 400 MHz nuclear magnetic resonance spectrometer, and a 90 MHz fixed magnet NMR.

Colonnade Program requirements for students majoring outside the sciences can be satisfied by CHEM 101, CHEM 109, or CHEM 111, where only one semester of chemistry is needed, or by the sequences CHEM 105/CHEM 106, CHEM 107/CHEM 108 or CHEM 120/CHEM 121, CHEM 222/CHEM 223, where two semesters of chemistry are desired.

Biochemistry courses (CHEM 446, CHEM 447, CHEM 462, and CHEM 467) are also offered as part of the curriculum. CHEM 446 is required for the major approved by the American Chemical Society. Biochemistry is also strongly recommended for pre-medicine and pre-dentistry students, and for biology majors desiring a second major in chemistry.

When planning a program of study in Chemistry, each student should be aware of the University’s academic requirements and regulations contained in the “Academic Information” chapter of this catalog. Specific attention should be given to the subsections in the chapter entitled a) Academic Programs, b) Colonnade Requirements, c) Academic Requirements and Regulations. Students should be aware that some academic programs may require additional scholastic regulations and standards not specified in the catalog. To obtain a copy of these regulations, students should contact the Department Chair.

## Degree

- Biochemistry, Bachelor of Science (519) (<http://catalog.wku.edu/undergraduate/science-engineering/chemistry/biochemistry-bs/>)
- Chemistry, Bachelor of Science (623) (<http://catalog.wku.edu/undergraduate/science-engineering/chemistry/chemistry-bs/>)

## Minors

- Chemistry, Minor (335) (<http://catalog.wku.edu/undergraduate/science-engineering/chemistry/chemistry-minor/>)

## Faculty

### Professor

Stuart C. Burris PhD (Chemistry), North Carolina State University, 1998  
 Eric D. Conte PhD (Chemistry), University of Massachusetts, 1993  
 Matthew J. Nee PhD (Chemistry), University of California-Berkeley, 2005  
 Lester L. Pesterfield PhD (Chemistry), University of Tennessee, Knoxville, 1991  
 Cathleen J. Webb PhD (Chemistry), University of Washington, 1989  
 Kevin M. Williams PhD (Chemistry), Emory University, 2000  
 Bangbo Yan PhD (Chemistry), Nanyang University, 2003  
 Rui Zhang PhD (Chemistry), University of Hong Kong, 2001

### Associate Professor

Lawrence J. Hill PhD (Chemistry), University of Arizona, 2014  
 Jeremy B. Maddox PhD (Chemistry), University of Houston, 2003  
 Carnetta C. Skipworth MS (Chemistry), Western Kentucky University, 2003

### Assistant Professor

Lei Li PhD (Chemistry), University of Florida, 2018

### Instructor I

Catherine P. Cornwell MAE, Western Kentucky University, 2011

### Senior Instructor

David E. Wolfgang PhD (Biochemistry), Cornell University, 1998