



DEPARTMENT OF CHEMISTRY

Chemistry at Missouri S&T

The Department of Chemistry at Missouri University of Science & Technology offers Ph.D., M.S., B.S., and B.A. degrees. The Department is heavily focused on fundamental and applied research in the areas of:

1. Fundamental chemistry, physics, and applications of materials (nanodiamond, 2D materials, polymers, materials for energy conversion and storage, materials for biomedical applications)
2. Biochemistry (drug delivery and diagnostic platforms, DNA, RNA, antioxidants, DNA nanostructures)
3. Physical chemistry (Raman, NMR, microwave spectroscopy, computational chemistry, electrochemistry)
4. Analytical chemistry (spectroscopic and chromatographic detection and analysis of biomolecules, nanoparticles, and pollutants)
5. Organic and organometallic chemistry (ferroelectric and optical organic materials, biomimetic CO₂ capture from air, organometallic catalysts, medicinal chemistry)
6. Coatings and polymers

The core of the Department is formed by 17 tenured/tenure-track faculty and 5 non-tenure-track faculty. The Department provides a highly research active, diverse and international environment.

Top 5 things to know

1. In 2019-20 two Ph.D. students in Chemistry received the Chancellor's Distinguished Fellowship
2. Chemistry has been ranked number 5 in research expenditures among all departments at Missouri S&T
3. The Department provides excellent GTA and GRA support to Ph.D. students
4. The Department provides financial support for graduate student travel to conferences and symposia
5. Undergraduate students are regularly involved in research through FYRE and OURE programs. In 2019, Chemistry started its new UGSR program to offer intensive summer research opportunities to undergraduate students

Alumni Spotlight

Carey B. Bottom is a Missouri S&T alumnus who earned B.S., M.S., and Ph.D. degrees in chemistry in 1972, 1975, and 1978, respectively. After finishing his Ph.D., Bottom joined Bristol-Myers and went on to a 35-year career, primarily in the pharmaceutical industry. He worked for Marion Laboratories and Schering-Plough before leaving Big Pharma for the startup sector, where he guided a number of emerging companies before retiring in 2014. He holds four patents and was recognized by the U.S. Food and Drug Administration for his leadership in advancing capsule technology. Bottom and an industry colleague were the first non-FDA persons to receive the FDA Commissioner's Special Citation. Bottom has twice been recognized with awards of distinction in chemistry from Missouri S&T.



"I wasn't keen on big universities," says Bottom. "At smaller schools, you're more connected to professors. You can roll up your sleeves and get involved." He enrolled in a chemistry special projects course one summer. "That class had a huge influence on my career," says Bottom. "I had the chance to conduct research under the guidance of a biochemistry professor, Dr. Donald J. Siehr."

In the summer of 2018, Dr. Bottom established the *Carey and Christine Bottom Endowed Fellowship in Undergraduate Research* and, in 2019, he sponsored *Carey Bottom's Science Ethics Support Initiative*, the first Graduate Scholarship in the Department of Chemistry. "Students jump to a new level when they have the freedom to learn through research," Bottom said. "That's how I found my calling."

Notable faculty



Jay Switzer Donald L. Castleman Endowed Professor, Curators' Distinguished Professor. Research interests: inorganic materials chemistry, electrochemistry, epitaxial films and nanostructures, and energy conversion. Fellow of the American Association for the Advancement of Science, the Materials Research Society, the Electrochemical Society, and the Japan Society for the Promotion of Science.



Risheng Wang Assistant Professor. Research interests: DNA-based assembly, biomedicine, drug delivery, plasmonic nanoparticles, biomedical carriers, biosensors, electronic fabrication, and nanofabrication. Her research team aims to integrate biomolecules and functional nanomaterials to develop sensitive biosensors for early disease diagnosis and advanced cancer therapy.



STARTING SALARY FOR
MASTERS STUDENTS

\$89,900 FOR Ph.D.
STUDENTS

STUDENT
TO FACULTY
RATIO **2:1**

5 YRS AVERAGE TTD
(TIME TO DEGREE)
CREDIT HOURS
NEEDED **24**