Chemistry

Chemistry has solved many of the world’s greatest challenges including genetic codes, creating materials that will take humans to Mars, and discovering what is needed for an artificial human heart. Chemistry is the study of elements, the compounds they form, and the reactions they undergo.

Chemists tackle a broad range of challenges from environmental cleanup and pollution prevention to creating the materials that fuel the space program. Chemistry has been called the central science because it occupies a pivotal place in many disciplines.

The combination of a natural love for science with an exciting research project makes a degree in Chemistry at Missouri S&T both enjoyable and productive. Students can elect a special emphasis area such as Secondary Education, Biochemistry, Polymer and Coatings, or Pre-med.

Student Organizations and Undergraduate Research
Chemistry students have the opportunity to participate in the South Central Missouri American Chemical Society (ACS), Alpha Chi Sigma, a professional chemistry fraternity, and the W.T. Schrenk Society, an affiliate organization of the ACS. Students can also participate in undergraduate research through the Office of Undergraduate Research Experience.

Scholarship Information
Freshman scholarships are awarded based on high school transcripts and ACT/SAT score. The departmental scholarship committee offers scholarships based on GPA, class rank, commitment to a career in chemistry, and SAT/ACT scores. There are also scholarships available depending upon the students emphasis area. A separate departmental application form is required.

Degree Options and Minors
Bachelor of Arts, Chemistry
Bachelor of Arts, Chemistry, Secondary Education
Bachelor of Science, Chemistry, ACS Certified with the following emphasis areas:
- B.S. Chemistry- Biochemistry
- B.S. Chemistry- Polymer and Coatings
- B.S. Chemistry- Pre-medicine
Minor, Chemistry

Entry-Level Job Titles
Teacher Consulting
Research Chemist Food and Drug Inspector
Chemical Sales Administration
Writing/Editing Quality Control

Employment and Graduate Studies
There has been a 100% success rate for placing students into jobs, graduate school, or medical school. Graduates have enjoyed successful careers in medicine, education, science laboratories, as well as sales and marketing. Upon completion of graduate school, chemistry majors have gone on to be doctors, dentists, biomedical scientists, and environmental chemists.

Co-op and Internship Availability
Co-op and intern programs are available to students. These programs provide students with the opportunity to integrate their classroom studies with productive work learning experiences in a field related to the student’s academic or career goals.

Chemistry Students have worked with the following companies through the co-op program:
- American Cyanamid Company
- Ashland Petroleum
- Baxter Healthcare
- Protein Technologies
- Monsanto Co.
- Sigma Chemical Co.
- MEMC Electronic Materials, Inc.

Departmental Contact Information
142 Schrenk Hall 573.341.4420
chem.mst.edu chem@mst.edu
Interim Chairman: Dr. Klaus Woelk
**Faculty**

**Professors:**
- Harvest Collier (Vice Provost for Undergraduate Studies), Ph.D., Missouri State
- Nuran Ercal (Endowed Chair in Biochemistry), Ph.D., Hacettepe University, MD, Istanbul Medical School
- Shubhender Kapila (Endowed Professor), Ph.D., Dalhousie University
- Nicholas Leventis (Curators’ Professor), Ph.D., Michigan State
- Gary J. Long, Ph.D., Syracuse
- Yinfa Ma (Curators’ Teaching Professor), Ph.D., Iowa State
- Chariklia Sotiropoulos-Leventis, Ph.D., Michigan State
- Jay Switzer (Endowed Professor of Discovery in Chemistry), Ph.D., Wayne State
- Philip D. Whitefield (Interim Vice Provost for Academic Affairs), Ph.D., University of London-Queen Mary College

**Associate Professors:**
- Paul Nam, Ph.D., University of Missouri-Columbia
- V. Prakash Reddy, Ph.D., Case Western Reserve University
- Thomas P. Schuman, Ph.D., University of Alabama-Huntsville
- Pericles Stavropoulos, Ph.D., Imperial College of Science, Technology & Medicine
- Michael R. Van De Mark, Ph.D., Texas A&M
- Jeffrey G. Winiarz, Ph.D., State University of New York at Buffalo
- Klaus Woelk (Interim Chairman), Ph.D., University of Bonn

**Assistant Professors:**
- Amitava Ghoshdary, Ph.D., Indian Institute of Science
- Richard Dawes, Ph.D., University of Manitoba
- Manashi Nath, Ph.D., Indian Institute of Science

**Assistant Teaching Professors:**
- EmmaLou Satterfield, M.S., Missouri University of Science and Technology

**Lecturers:**
- Cynthia Bolon, Ph.D., University of Missouri-Rolla (now Missouri S&T)
- Terry Lynn Bone, Ph.D., University of Missouri-Rolla (now Missouri S&T)

**Bachelor of Arts, Chemistry  120 Credit Hours**

**English 1120: Exposition & Argumentation**
**English 1160: Writing and Research**
**History 1100: Early Western Civilization**
**History 1200: Modern Western Civilization**
**Math 1208: Calculus w/ Analytic Geometry I**
**Math 1221: Calculus w/ Analytic Geometry II**
**Foreign Language**
**Statistics 3113: Applied Engineering Statistics**
**Physics 1111: General Physics I**
**Physics 1119: General Physics Lab I**
**Physics 2111: General Physics II**
**Physics 2119: General Physics Lab II**
**Chem 1310: General Chemistry**
**Chem 1319: General Chemistry Lab**
**Chem 1320: General Chemistry**
**Chem 1100: Intro to Lab Safety and Hazardous Materials**
**Chem 1510: Qualitative Analysis**
**Chem 1319: General Chemistry**
**Chem 1319: General Chemistry Lab**
**Chem 1320: General Chemistry**
**Chem 1100: Intro to Lab Safety and Hazardous Materials**
**Chem 1510: Qualitative Analysis**
**Chem 1110: Intro to Chemistry**
**Chem 2210: Organic Chemistry I**
**Chem 2219: Organic Chemistry I Lab**
**Chem 2220: Organic Chemistry I**
**Chem 2229: Organic Chemistry II Lab**
**Chem 2310: Inorganic Chemistry**
**Chem 2319: Inorganic Chemistry Lab**
**Chem 2510: Analytical Chemistry I**
**Chem 3410: Physical Chemistry I**
**Chem 3419: Physical Chemistry Lab**
**Chem 3430: Physical Chemistry**
**Chem 3439: Physical Chemistry Lab**
**Chem 3510: Analytical Chemistry II**
**Chem 4297: Organic Synthesis & Spec. Analysis**
**Chem 3420: Intro to Quantum Chemistry**
**Chem 4610: Biochemistry**
**Chem 4010 or 4099: Undergraduate Seminar or Research**
**Chem Electives**
**Social Science Electives**
**Technical Electives**
**Humanities Electives**
**Humanities Elective Literature**
**Free Electives**

*Students wishing to complete an additional emphasis area in biochemistry, polymer and coatings or pre-med must complete paperwork in the department office. The biochemistry and polymer and coatings emphasis areas consist of 131 credit hours and the pre-med consists of 133 credit hours. Students will be assigned an advisor to assist with course selection.*

**Minor, Chemistry  19 credit hours**
**Chem 1310: General Chemistry**
**Chem 1319: General Chemistry Lab**
**Chem 1320: General Chemistry**
**Chem 1100: Intro to Lab Safety & Hazardous Materials**
**Chem 1510: Qualitative Analysis**
**Chem 2210: Organic Chemistry**
**Either Chem 2289 or 2219: Organic Chemistry Lab**

Three additional hours of chemistry are to be selected from Chem 2510: Analytical Chemistry, or other upper level Chem courses.

**Notes**
Detailed information on course equivalencies, acceptable credits for elective coursework, grade requirements, and prerequisites is available from Missouri S&T’s Registrar’s Office at registrar.mst.edu.

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*Students wishing to earn a B.A. with an additional emphasis in Secondary Education must complete 135 credit hours. The additional courses are in Education, Psychology, History, Speech, and Content Areas. Students must complete paperwork in the department office to choose this emphasis area and will receive an advisor to assist with course selection.*