Chemistry is the branch of natural science that deals with the properties and classification of matter, the changes that matter undergoes and the energy associated with these changes. Chemists study substances at the atomic and molecular level and how different substances interact with each other. Research by chemists increases our knowledge about chemicals and their roles in the natural world and has led to the discovery and development of new and improved products and advances in medicine, agriculture, food processing and many other fields. Chemists are employed by industry, government, academia, non-profits and in the entrepreneurship sector. Those interested in a challenging and rewarding career that provides financial security, promotes self-respect and offers the opportunity to work on stimulating and breakthrough projects should consider a career in chemistry.

**Becoming Career Ready...**

/ Faculty-mentored research and guidance will help you develop the professional skills needed for success in a competitive job market and/or advanced study in graduate and professional programs.

/ Upon graduation, ACS Certified Chemistry graduates will be prepared to enter the workforce as a chemist in a variety of fields, such as biotechnology, chemical and pharmaceutical manufacturing, product development, quality control, sales (pharmaceuticals, chemicals, instruments), chemical safety and hygiene, hazardous waste management, environmental protection, cheminformatics and technical writing, to name a few. The ACS Certified chemistry curriculum provides an excellent basis for graduate and professional areas of study.

/ 100% of Southeast programs offer real-world experience. ACS Certified Chemistry students may earn this experience through undergraduate research or an internship.

/ Completion of the ACS Certified Chemistry program will satisfy the requirements for certification to the American Chemical Society (ACS), which represents the minimum undergraduate preparation recommended by the ACS for the professional chemist.

/ ACS Certified chemistry students will study in the state-of-the-art, first-rate learning environment provided by the recently renovated Magill Hall of Science while gaining hands-on experience and training using a variety of lab equipment, chemical instruments and tools in laboratory courses and undergraduate research.

/ The path to a successful career starts with you! You can maximize your career development by working closely with Career Services and Southeast faculty – they are here to help you connect your passions, interests and skills to jobs and opportunities in the field. Career Services provides professional career counseling and coaching, resume critiques, practice interviews, job search strategies, career events, networking opportunities and more.

**Internships, Employment Opportunities, Graduate Schools and Programs of Recent Graduates:**

- Biokyowa
- Buzzi Unicum USA
- Eli Lilly
- Exxon Mobil
- Monsanto
- Pharmacia (currently part of Pfizer)
- PPG Industries
- Proctor and Gamble
- MilliporeSigma
- Missouri State Highway Patrol Crime laboratory
- Indiana University
- John Hopkins University
- Penn State University
- Purdue University
- Southern Illinois University (School of Medicine)
- Texas A & M
- University of Illinois (School of Medicine, Graduate School)
- University of Missouri – Columbia (School of Medicine, Graduate School)
- University of Notre Dame
- University of Wisconsin – Madison
- Washington University
- Numerous other graduate/professional programs of study and employers

**Special Options with Chemistry**

Southeast offers a Master of Natural Science in Applied Chemistry.

**Career Information**

To learn more about career opportunities in chemistry visit: https://www.acs.org/content/acs/en/careers/college-to-career.html.


**Transfer and Dual Credit Students**

If you have dual credit or transfer credit, please visit our transfer course equivalencies guide at semo.edu/transfercredit.
This is a guide based on the 2020-2021 Undergraduate Bulletin and is subject to change. The time it takes to earn a degree will vary based on several factors such as dual enrollment, remediation, and summer enrollment. Students will meet with an academic advisor each semester and use Degree Works to monitor their individual progress.

CURRICULUM CHECKLIST

"Critical Courses" are italicized and bolded. Data shows that students who have completed this course in the first two years and have earned the noted grade are most likely to complete this program of study.

**Required Courses:**
- CH185 General Chemistry (5)
- CH186 Foundations of Inorganic Chemistry (3)
- CH187 Inorganic Chemistry & Qualitative Analysis Laboratory (2)
- CH271 Foundations of Analytical Chemistry (5)
- CH311 Foundations of Physical Chemistry (4)
- CH312 Advanced Physical Chemistry (3)
- CH313 Physical Chemistry Laboratory (3)
- CH341 Foundations of Organic Chemistry (4)
- CH342 Organic Chemistry Laboratory I (1)
- CH343 Advanced Organic Chemistry (3)
- CH344 Organic Chemistry Laboratory II (2)
- CH498 Professional Presentation in Chemistry (1)
- CH531 Foundations of Biochemistry (3)
- UI331 or CH531
- UI331 Foundations of Biochemistry (3)
- UI443 Professional Experience in Chemistry (3)

Chemistry Electives – Choose one seven to eight-hour track

**Track A:**
- CH39X Undergraduate Research (4)
  Choose 4 hours from:
  - CH332/333 Advanced Biochemistry Lecture and Lab (2+2)
  - CH663/663 Advanced Inorganic Chemistry (5)
  - CH575/075 Chemical Instrumentation (4)

**Track B:**
Choose two of the following to include a minimum of 3 hours of lab work:
- CH420/020 Forensic Chemistry (4)
- CH447/042 Advanced 1 & 2 Dimensional NMR Techniques (3)
- CH540 Environmental Chemistry (3)
- CH532/533 Advanced Biochemistry Lecture and Lab (2+2)
- CH545 Organic Preparations and Characterization (3)
- CH523/523 Advanced Organic Chemistry Laboratory II (5)
- CH575/075 Chemical Instrumentation (4)

**Additional Requirements:**
- MA140 Analytical Geometry and Calculus I (5)
- MA145 Analytical Geometry and Calculus II (4)
- PH120/020 Introductory Physics I (5)
  - AND
  - PH121/021 Introductory Physics II (5)
  - OR
  - PH230/030 General Physics I (5)
  - AND
  - PH231/031 General Physics II (5)

**General Education Requirements** – some requirements may be fulfilled by coursework in major program
- Social and Behavioral Sciences – 6 hours
- Constitution Requirement – 3 hours
- Written Communication – 6 hours
- Oral Communication – 3 hours
- Natural Sciences – 7 hours (from two disciplines, one to include a lab)
- Mathematics – 3 hours
- Humanities & Fine Arts – 9 hours (from at least two disciplines)
- Additional requirements – 5 hours (to include MA140 or for native students)
- Civics examination

**Sample Four-Year Plan**

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<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>Course #</td>
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<tr>
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<td>UI100</td>
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<tr>
<td>EN100</td>
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<td>MA140</td>
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<td>SECOND YEAR</td>
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A "Milestone" signifies a significant stage for a student in the completion of a degree.

Degree requirements for all students: a minimum of 120 credit hours, completion of the General Education program, and completion of 39 senior division hours (300-599). Refer to the Undergraduate Bulletin or Degree Works for additional graduation requirements for your program.

A minimum 2.0 GPA in the major and overall are required to graduate with a BS degree.