

Bachelor of Science (BS)**Forensic Chemistry Option**

Forensic science is the application of scientific principles to civil and criminal laws, and as such, plays a vital role in the criminal justice system. Forensic science is a very broad field that includes areas such as ballistics, crime scene investigation, DNA analysis, forensic toxicology, fingerprint analysis, forensic drug analysis and digital forensic analysis, just to name a few. Forensic chemists typically analyze non-biological evidence and controlled substances found at crime scenes or taken from crime suspects in order to identify and quantify these materials and to match evidence to crime suspects or criminal activity. They use a variety of sophisticated lab techniques, including gas chromatography, infrared spectroscopy, microscopy, spot testing and mass spectroscopy and apply knowledge from diverse areas, such as chemistry, biology, and genetics, to help solve crimes. They are often called to testify in court as expert witnesses. Most forensic scientists are employed in crime labs associated with local, state or federal law enforcement agencies. Those interested in a challenging and rewarding career that provides financial security, promotes self-respect and offers the opportunity to work on stimulating projects should consider a career in forensic science.

Becoming Career Ready...

/ Faculty with experience, including current and former forensic professionals, work closely with students preparing them for the forensics field. Faculty-mentored research will help you develop the professional skills needed for success in a competitive job market and/or advanced study in graduate and professional programs.

/ The Forensic Chemistry curriculum prepares graduates for careers in forensic science or chemistry and also provides an excellent basis for graduate and professional areas of study. Example job titles include forensic science technician, forensic scientist, crime lab technician, and criminalist.

/ 100% of Southeast programs offer real-world experience. Forensic Chemistry students earn this experience through hands-on experience and training in our forensic education lab, i.e. our "mock" crime lab, using the same methods, chemical instruments, and tools used by forensic professionals. This lab was fully equipped with a \$700,000 grant from the federal government.

/ The BS Chemistry: Forensic Chemistry option will provide you with the coursework and experiential preparation recommended by the American Academy of Forensic Sciences and favored by forensic laboratory directors.

/ 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:

- Arkansas State Crime Laboratory
- Illinois State Police Forensic Sciences Command
- Missouri State Highway Patrol Crime Laboratory Division
- Saint Louis Metropolitan Police Department
- US Army Criminal Investigation Laboratory
- US Bureau of Alcohol, Tobacco, Firearms, and Explosives
- United States Drug Enforcement Administration
- Numerous state and local forensic laboratories nationwide
- Biokyowa
- Buzzy Unicom USA
- Eli Lilly
- Exxon Mobil
- Monsanto
- Pharmacia (currently part of Pfizer)
- PPG Industries
- Proctor and Gamble
- MilliporeSigma
- Numerous additional chemical companies
- John Hopkins University
- Purdue University
- University of Illinois (School of Medicine, Graduate School)
- University of Notre Dame
- University of Wisconsin – Madison
- Washington University
- Michigan State University
- Numerous additional top-tier chemistry graduate and professional schools

Special Options with Chemistry

Southeast offers a Master of Natural Science in Applied Chemistry with a Forensic Chemistry option.

Career Information

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

According to the United States Bureau of Labor Statistics, there were 15400 forensic science related jobs in 2016. This number is expected to increase by 17% by 2026. Source:
<https://www.bls.gov/ooh/life-physical-and-social-science/forensic-science-technicians.htm#tab-6>.

Transfer and Dual Credit Students

If you have dual credit or transfer credit, please visit our transfer course equivalencies guide at semo.edu/transfercredit.

To learn more
 Office of Admissions
 (573) 651-2590
admissions@semo.edu
semo.edu

To explore
 the College of Science,
 Technology, Engineering and
 Mathematics online, visit
semo.edu/stem

For advising
 Center for Academic Advising
semo.edu/advising

Bachelor of Science (BS)

This is a guide based on the 2021-2022 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.

Chemistry: Forensic Chemistry option – 61-62 hours required – no minor required

Required Courses:

- ___ *CH 184 General Chemistry I Lab (1)*
- ___ *CH 185 General Chemistry I (3)*
- ___ *CH 186 General Chemistry II (3)*
- ___ CH 187 General Chemistry II Lab (1)
- ___ CH 195 Chemistry Seminar I (1)
- ___ CH 271 Foundations of Analytical Chemistry (5)
- ___ CH 295 Chemistry Seminar 2 (2)
- ___ CH 306 Inorganic Chemistry (3)
- ___ *CH 341 Found of Organic Chem (4)*
- ___ CH 342 Organic Chemistry Lab I (1)
- ___ CH 495 Chemistry Seminar 3 (1)
- ___ CH 531 Found of Biochemistry (3)

Forensic Chemistry Option:

- ___ CH 313 Physical Chemistry Laboratory (3)
- ___ CH 343 Advanced Organic Chemistry (3)
- ___ CH 420 Forensic Chemistry (4)
- ___ CH 533 Biochemistry Laboratory (2)
- ___ CH 575 Chemical Instrumentation (4)
- ___ EV 460 Introduction to Toxicology (3)
- ___ FS 351 Criminalistics (3)
- ___ FS 550 Forensic Microscopy (2)
- ___ FS 553 Analysis of Pattern Evidence (3)
- ___ MA 423 Statistical Analysis for Forensic Science (3)
- ___ Choose 3-4 hours of CH or FS electives (300-500 level)

Choose one course:

- ___ *CH 311 Foundations of Physical Chemistry (4)*
- ___ *CH 312 Advanced Physical Chemistry (3)*

Additional Requirements:

- ___ *MA 140 Analytical Geometry and Calculus I (5)*
- ___ MA 145 Analytical Geometry and Calculus II (4)
- ___ PH 120 Introductory Physics I (5)
- ___ PH 121 Introductory Physics II (5)
- ___ OR
- ___ PH 230 General Physics I (5)
- ___ PH 231 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 UI100 for native students)
- Civics examination

SAMPLE FOUR-YEAR PLAN

	Fall Semester		Spring Semester	
	Course #	Hrs	Course #	Hrs
FIRST YEAR	UI100	1	<i>CH186/187</i>	4
	EN100	3	CH195	1
	<i>CH184/185</i>	4	MA145	4
	<i>MA140</i>	5	General Education	3
	General Education	3	General Education	3
	Total	16	Total	15
Milestone: maintain 2.0 cumulative GPA				

SECOND YEAR	CH271/071	5	CH295	2
	<i>CH341</i>	4	CH343	3
	CH342	1	PH121/021 or PH231/031	5
	PH120/020 or PH230/030	5	General Education	3
			General Education	3
	Total	15	Total	16
Milestone: maintain 2.0 cumulative GPA				

(summer courses are encouraged to avoid 18 hour semesters)

THIRD YEAR	CH306	3	CH533	2
	CH420	4	FS351	3
	CH531	3	MA423	3
	FS550	3	General Education	3
	General Education	3	General Education	3
	Total	16	Total	14
Milestone: maintain 2.0 cumulative GPA				

FOURTH YEAR	CH311 or CH312 or CH/FS elective	3-4	CH311 or CH312 or CH/FS elective	3-4
	EV460	3	CH313	3
	FS553	3	CH495	1
	Elective	3	CH575	4
	Elective	3	Elective	2-3
	Total	15-16	Total	13-14
Milestone: maintain 2.0 cumulative GPA				

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.

Revised
5/17/2021