

Biology: Biomedical Sciences Option

Bachelor of Science (BS)

Biomedical Sciences Option

This option is for the students preparing to apply for admission into a professional school in one of the following areas: allopathic medicine, osteopathic medicine, chiropractic medicine, optometry, or dentistry. Students interested in biomedical research may also consider this option. The curriculum includes supporting chemistry, physics, and mathematics course work.

The Department of Biology has numerous research and teaching labs that provide excellent opportunities for “hands-on” experiences. We have relationships with local health professionals and two regional hospitals that provide numerous opportunities for volunteering, part-time employment, internships, and shadowing. Students may also choose to be involved in the Student Medical Society and Alpha Epsilon Delta honorary society.

Biomedical Sciences students will...

- Meet with their advisor each semester to assess their progress towards admission to a professional school.
- Take a core of courses that prepares them in any area of biology.
- Take rigorous coursework in animal physiology and molecular genetics which are required for most medical schools.
- Select additional electives in virology, immunology, pathogenic bacteriology, epidemiology, health physics, and toxicology.
- Complete 80 hours (for 2 credit hours) of experiential learning, usually shadowing doctors and nurses.
- Complete additional coursework in organic chemistry, physics, and mathematics to make them competitive for admission to medical schools.
- Attend classes in the renovated Magill Hall furnished with modern equipment.

Career Planning

Career preparation is part of the mission of Southeast. In fact, more than 90% of Southeast students participate in internships, clinical opportunities, student teaching, research assistantships, and study abroad.

Professional career counselors are available for all students. The Office of Career Services in Academic Hall 057 can provide students with professional career counseling, resume critiques, practice interviews, job search strategies, career events, networking opportunities, and more. Students in this major will receive special attention from their adviser in CL003 and CL004 to prepare their medical school application and medical school interviews.

Demonstrated Career Proficiency is a Requirement of all Southeast Students

CL001/CL002	First Semester	Complete the FOCUS2 assessment and develop a Career Action Plan.
CL003	Junior Year	Students gain information about career planning and job searching resources.
CL004	Senior Year	Students demonstrate advanced proficiency by identifying a position in their field, developing a cover letter, and tailoring a resume for the position. Materials are critiqued to ensure preparedness for a successful job search.

Southeast graduates have attended some of the most prestigious medical schools throughout the country, including:

- Harvard Medical School
- Vanderbilt University School of Medicine
- St. Louis University School of Medicine
- University of Minnesota
- Kansas University – Kansas City
- University of Arkansas

Missouri residents typically matriculate to

- University of Missouri - Columbia
- University of Missouri – Kansas City

Southeast students are eligible for the Bryant’s Scholar Program at the University of Missouri-Columbia.

Illinois residents typically matriculate to

- Southern Illinois University
- University of Illinois

Osteopathic medicine provides a fantastic opportunity to become a physician at

- A.T. Still – Kirksville College of Osteopathic Medicine
- Carey College of Osteopathic Medicine
- Edward Via College of Osteopathic Medicine

Southeast students have access to the KCOM Pre-Osteopathic Scholar Pre-admission Program.

Other professional schools Students have attended include

- UM - Kansas City Dental School
- UM - St. Louis Optometry School

Students interested in chiropractic medicine may matriculate directly to Logan College of Chiropractic medicine through our 3+3 plan.

Shadowing experiences are often fulfilled at

- St. Francis Medical Center
- Southeast Missouri Hospital
- Landmark Hospital
- Delta Area Hospital
- Local doctors, dentist, optometrists, and chiropractors
- Physicians and medical centers in the student’s hometown

Admission Requirements

A college preparatory sequence that includes three years of science (including biology, chemistry, and physics) and mathematics through advanced algebra is encouraged. There is no admission process to this major, but students that are honors eligible are directly admitted to the Biomedical Scholars advising program.

To learn more

Office of Admissions
(573) 651-2590
admissions@semo.edu
www.semo.edu

To explore the College
of Science, Technology, and
Agriculture online, visit
www.semo.edu/costa

For advising

College of Science, Technology, and Agriculture
Advising Center (573) 651-5930
costaadvising@semo.edu
www.semo.edu/costa/advising

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This is a guide based on the 2015-2016 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 DegreeWorks 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:

- ___ BI151 Biological Reasoning (3)
- ___ BI153 Introduction to Organismal Biology (4)
- ___ ***BI154 Genetics and Cell Biology (4)***
- ___ BI489 Analysis of Biological Issues (2)
- ___ ***CH185/085/005 General Chemistry (5)***

Choose one math course:

- ___ ***MA134 College Algebra (3)***
- ___ MA137 Precalculus (5)
- ___ MA139 Applied Calculus (3)
- ___ MA140 Analytical Geometry & Calculus I (5)

Choose one additional math course:

- ___ MAxxx Additional math (MA133 or higher) (3)

Experiential Learning Requirement: 2 hours

- ___ BI 471-473 Internships in Biology (2)
- OR
- ___ BI 551-553 Biology Field Studies (2)
- OR
- ___ BI 589-591 Biological Research (2)

Biomedical Sciences Option Required Courses:

- ___ BI381 Molecular Genetics (3)
- ___ ZO331 Animal Physiology (3)

Biology Electives: Choose 17 Hours

Any BI, BO, ZO, BT courses. At least 10 credit hours must be at the 300-599 level.

Non-Biology Requirements:

- ___ CH186 Foundations of Inorganic Chemistry (3)
- ___ CH187 Inorganic Chemistry and Qualitative Analysis Lab (2)
- ___ ***CH341 Foundations of Organic Chemistry (4)***
- ___ CH342 Organic Chemistry Lab I (1)
- ___ PH120/020 Introductory Physics I (5)
- ___ PH121/021 Introductory Physics II (5)

University Studies Requirements (not already listed above):

UI100 First Year Seminar, EN100 English Composition, Artistic Expression, Written Expression, Oral Expression, Literary Expression, Behavioral Systems, Development of a Major Civilization, Economic Systems, Social Systems, Political Systems, and two IU/UI3XXs and one UI4XX.

Professional School Admissions

Students seeking to attend professional schools in the biomedical sciences will be required to take an admissions test as specified below:

- Medical school: Medical College Admission Test (MCAT)
- Dental school: Dental Admission Test (DAT)
- Optometry School: Optometry Admission Test (DAT)

The curriculum for this degree is aligned to prepare students to be competitive applicants to biomedical professional schools and to perform well on the admissions tests. Students are advised to complete a substantial portion of the degree curriculum prior to attempting these admissions tests, typically after the third year of studies. Students should consult with their Biomedical Scholars advisor regarding preparation for these tests. The Biomedical Scholars advisors will advise students on the admissions process and timeline. Students should be aware that admission to these professional programs is very competitive and their GPA will need to be substantially higher than the minimum required for graduation.

SAMPLE FOUR-YEAR PLAN

	Fall Semester		Spring Semester	
	Course #	Hrs	Course #	Hrs
FIRST YEAR	UI100	3	BI153	4
	BI151	3	CH186	3
	<i>CH185/085/005</i>	5	CH187	2
	<i>MA134/137/39/140</i>	3-5	EN100	3
			Additional Math course	3
Total	14-16	Total	15	
Milestone: maintain 2.0 cumulative GPA				

SECOND YEAR	<i>BI154</i>	4	CH343*	3
	<i>CH341</i>	4	CH344*	2
	CH342	1	Biology elective	3
	Artistic Expression	3	Biology elective	3
	Written Expression	3	Literary Expression	3
	Total	15	Total	14
Milestone: maintain 2.0 cumulative GPA				

(summer courses are encouraged to avoid 18 hour semesters)

THIRD YEAR	BI381	3	Biology elective	3
	PH120/020	5	PH121/021	5
	Biology elective	3	ZO331	3
	Experiential Learning Req	2	Behavioral Systems	3
	IU/UI3XX	3	Social Systems	3
	Total	16	Total	17
Milestone: take admission test and apply to professional program				

FOURTH YEAR	Biology electives	3	BI489	2
	Develop of a Major Civ	3	Biology elective	3
	Oral Expression	3	Economic Systems	3
	IU/UI 3XX	3	Political Systems	3
	Elective	3	UI4XX	3
	Total	15	Total	14
Milestone: maintain 2.0 cumulative GPA				

A "Milestone" signifies a significant stage for a student in the completion of a degree.

*Recommended for program; consult advisor

Degree requirements for all students: a minimum of 120 credit hours, completion of University Studies program, career proficiencies (CL001-004), Writing Proficiency Exam (WP003), and completion of the Measure of Academic Proficiency and Progress (MAP) at the senior level.

A minimum 2.00 GPA in the major and overall are required to graduate with a BS in Biology degree.

Refer to the Undergraduate Bulletin or DegreeWorks for additional graduation requirements (i.e. minimum GPA and coursework) for your program of study.