

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 a number of student organizations.

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, comparative anatomy, molecular genetics, 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. 100% of programs offer our students an internship, study-abroad program, clinical opportunity, student teaching or research internship.

The Office of Career Services in Academic Hall 057 can provide students with professional career counseling and coaching, 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.

Transfer and Dual Credit Students

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

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

- Washington University in St. Louis
- 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
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

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This is a guide based on the 2018-2019 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:

- ___ BI163 Evolution & Ecology (4)
- ___ BI173 Cell & Organismal Biology (4)
- ___ **BI283 Genetics (4)**
- ___ BI389 Career Development in Biology (1)
- ___ CH185/085/005 General Chemistry (5)

Choose one math course:

- ___ MA116 Precalculus A (3)
- ___ MA137 Precalculus (5)
- ___ MA139 Applied Calculus (3)
- ___ MA140 Analytical Geometry & Calculus I (5)

Choose one additional math course:

- ___ Mxxx Additional math (for which MA116 is a prerequisite) (3)
- OR

- ___ MA155 Statistical Reasoning (3)

Experiential Learning Requirement: 2 hours

- ___ BI 471-473 Internships in Biology (2)
- ___ BI 551-553 Biology Field Studies (2)
- ___ BI563-565 Experience in Museum Curation (1-3)
- ___ BI 570 Development of Instructional Materials (1)
- ___ BI 589-591 Biological Research (2)

Biomedical Sciences Option Required Courses:

- ___ BI310 General Microbiology (4)
- OR

- ___ ZO310 Animal Biology (4)
- ___ 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 – some requirements may be fulfilled by coursework in major program

- Social and Behavioral Sciences – 3 hours
- Constitution requirement – 3 hours
- US History 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)

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	BI173	4
	BI163	4	CH186	3
	CH185/085/005	5	CH187	2
	MA116/137/39/140	3-5	EN100	3
			Additional Math course	3
	Total	15-17	Total	15
Milestone: achieve a target cumulative GPA of 3.2				

SECOND YEAR	BI283	4	BI310 or ZO310	4
	CH341	4	CH343*	3
	CH342	1	CH344*	2
	University Studies	3	Biology elective	3
	University Studies	3	University Studies	3
	Total	15	Total	15
Milestone: achieve a target cumulative GPA of 3.2				

(summer courses are encouraged to avoid 18 hour semesters)

THIRD YEAR	PH120/020	5	BI389	1
	ZO331	3	PH121/021	5
	Biology elective	3	Biology elective	3
	Experiential Learning Req	2	University Studies	3
	Elective	3	University Studies	3
	Total	16	Total	15
Milestone: take admission test and apply to professional program				

FOURTH YEAR	Biology electives	4	Biology electives	4
	University Studies	3	University Studies	3
	University Studies	3	University Studies	3
	Elective	3	Elective	3
	Elective	3		
	Total	16	Total	13
Milestone: achieve a target cumulative GPA of 3.2				

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

*Recommended for program; consult advisor

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

Degree requirements for all students: a minimum of 120 credit hours, completion of University Studies program, completion of 39 senior division hours (300-599), Writing Proficiency Exam (WP003), and completion of the Measure of Academic Proficiency and Progress (MAP) at the senior level. Refer to the Undergraduate Bulletin or Degree Works for additional graduation requirements for your program.

Revised
7/10/2018