

## Bachelor of Science (BS)

# Biology Option

The societal need for highly trained and educated public health professionals continues to grow rapidly. According to the US Bureau of Labor Statistics (BLS), nearly one-third of the projected increase in US jobs is projected to come from the healthcare and social assistance sectors.

Public health professionals protect, improve and promote the health of individuals, communities and populations. They play a significant role in responding to infectious disease epidemics and emergency situations relating to natural disasters. The work of a public health professional can range from addressing the health needs of people in a very specific locality to focusing on the spread of disease across the globe. The work of public health professionals spans many disciplines.

The curriculum for the B.S. in Public Health consists of a core of approximately 83 credit hours, 15 credit hours in a selected option, and 22 additional credit hours of general education and elective credits. The core draws on courses taught by twelve different departments. The option area is intended to allow students to gain an in-depth understanding of a specific area of professional practice. All students complete internships and/or research participation. This interdisciplinary curriculum provides multiple opportunities for graduates in the growing public health field.

### Public Health students will...

- Understand the concepts of population health, and the basic processes and interventions that identify and address major health related needs and issues for populations.
- Be able to identify opportunities for promoting and protecting health across the human life span by acquiring an understanding of the science of human health and disease.
- Develop an understanding of the socioeconomic, behavioral, biological, environmental and other factors that impact human health and health disparities.
- Be able to use and analyze public health data and evidenced based approaches in public health practice.
- Be well prepared to directly enter career positions in the public health field or to successfully pursue post-baccalaureate education programs.

### 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.

/ The Public Health: Biology option program prepares graduates for multiple opportunities in the growing public health management field. Example job titles include epidemiologist, public health microbiologist, drug sales and health researcher

/ 100% of Southeast programs offer real-world experience. Public Health: Biology option students learn this by completing a required internship and/or research participation at a governmental research or public health center, philanthropic organization or public health consultant.

/ 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 and Graduate Schools of Recent Graduates:

- Health Officer
- Project Manager
- Health Research Analyst
- Rural Health Analyst
- Disaster Specialist
- Health Services Consultant
- Humanitarian Organizations
- Program Administrators
- Policy Analysis and Planning
- Community Based Prevention Manager
- Management Analyst
- Quality and Performance Measurement
- Public Health Administrator
- State Departments of Public Health
- Entertainment/Hospitality Companies
- Universities and Colleges
- Community Health Manager
- Local Public Health Agencies
- Federal Emergency Management Agency
- U.S. Food and Drug Administration
- U.S. Department of Agriculture
- Health Plans
- Washington University School of Public Health
- St. Louis University School of Public Health
- University of Missouri – Columbia

### Admission Requirements

A college preparatory sequence that includes three years of science (including biology, chemistry and physics) and mathematics through advanced algebra is encouraged.

### Transfer and Dual Credit Students

If you have dual credit or transfer credit, please visit our transfer course equivalencies guide at [semo.edu/transfercredit](http://semo.edu/transfercredit).

**To learn more**  
 Office of Admissions  
 (573) 651-2590  
[admissions@semo.edu](mailto:admissions@semo.edu)  
[semo.edu](http://semo.edu)

**To explore**  
 the College of Science,  
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[semo.edu/stem](http://semo.edu/stem)

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# Public Health: Biology Option

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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.

#### Public Health: Biology Option – 95-97 credit hours

- \_\_\_ BI163 Evolution and Ecology (4)
- \_\_\_ ***BI173 Cell and Organismal Biology (4)***
- \_\_\_ BI310/BS240/BS242 Microbiology (3-4)
- \_\_\_ BI443/EV443 Epidemiology (3)
- \_\_\_ BI454/EV454 Risk Assessment Applications (3)
- \_\_\_ BI471/EV481/HA471/PS384 Internship (1)
- \_\_\_ BS113 Anatomy and Physiology I (4)
- \_\_\_ BS114 Anatomy and Physiology II (4)
- \_\_\_ ***CH185 General Chemistry (5)***
- \_\_\_ CH234/CH341 Organic and Biological Chemistry (3-4)
- \_\_\_ EC215 Microeconomics (3)
- \_\_\_ EV 401 Environmental Science Seminar (1)
- \_\_\_ HL320 Community Health (3)
- \_\_\_ IS175 Information Systems (3)
- \_\_\_ ***MA116 Precalculus A (3)***
- \_\_\_ MA223/MA155 Probability and Statistics (3)
- \_\_\_ PS103 US Political Systems (3)
- \_\_\_ PY220 Psychological Development Across the Lifespan (3)
- \_\_\_ PY555 Health Psychology (3)
- \_\_\_ SC105 Fundamentals of Oral Communication (3)
- \_\_\_ SC301 Foundations of Health Communications (3)
- \_\_\_ SO102 Society, Culture and Social Behavior (3)
- \_\_\_ IU309 Professional Writing for Science and Technology (3)
- \_\_\_ UI352 Medical Ethics (3)
- \_\_\_ UI386 Environmental Health (3)
- \_\_\_ UI412 American Healthcare Systems (3)

#### Biology Option: select 15 credit hours from the following:

- \_\_\_ BI283 Genetics (4)
- \_\_\_ BI413 Molecular Genetics (3)
- \_\_\_ BI441 Virology (3)
- \_\_\_ BI442 Immunology (4)
- \_\_\_ BI447/EV447 Fundamentals of Disaster/Emergency Management and Planning (3)
- \_\_\_ BI448/EV448 Disaster/Emergency Planning and Response (3)
- \_\_\_ BI449/EV449 Vulnerability, Risk Reduction & Critical Incident Management (3)
- \_\_\_ BI453/EV453 Occupational Health (3)
- \_\_\_ BI456/EV456 Fundamentals of Risk Communication in Emergency Management (3)
- \_\_\_ BI458 Analytical Bioinformatics (3)
- \_\_\_ BI460/EV460 Introduction to Toxicology (3)
- \_\_\_ BI543/043 Pathogenic Microbiology (4)

**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
<b>FIRST YEAR</b>	UI100	3	<b><i>BI173</i></b>	4
	BI163	4	EN100	3
	<b><i>CH185</i></b>	5	MA223 or MA155	3
	<b><i>MA116</i></b>	3	SO102	3
			General Education	3
	<b>Total</b>	<b>15</b>	<b>Total</b>	<b>16</b>
Milestone: maintain 2.0 cumulative GPA				
<b>SECOND YEAR</b>	CH234/CH341	3-4	BI310/BS240/BS242	3-4
	HL320	3	EC215	3
	IS175	3	PS103	3
	PY220	3	SC105	3
	General Education	3	General Education	3
		<b>Total</b>	<b>15-16</b>	<b>Total</b>
Milestone: maintain 2.0 cumulative GPA				
<b>THIRD YEAR</b>	BS113	4	BI443/EV443	3
	IU309	3	BS114	4
	I352	3	SC301	3
	Option Course	3	UI386	3
	Elective	1	Option Course	3
	<b>Total</b>	<b>14</b>	<b>Total</b>	<b>16</b>
Milestone: maintain 2.0 cumulative GPA				
<b>FOURTH YEAR</b>	BI454/EV454	3	BI471/EV481/HA471/PS384	1
	UI412	3	EV401	1
	Option Course	3	PY555	3
	General Education	3	Option Courses	6
	Elective	3	Elective	3
		<b>Total</b>	<b>15</b>	<b>Total</b>
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 2.00 GPA in the major and overall are required to graduate with a BS degree.

Revised  
6/1/2020