

B.S. Biology, Biomedical Emphasis

2020-21

DEPARTMENT PERSONNEL

Chair

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Biomedical research and professional healthcare careers increasingly rely on molecular and cell biology as well as biochemistry, physics, and mathematics. Cultivating a deep understanding of the cell human body at the molecular level is not only exciting, but it develops the analytic thinking skills that are critical for both research and healthcare. Southwestern Adventist University's Bachelor of Science degree in Biology with a Biomedical emphasis offers students the training and knowledge base necessary to pursue a career in biomedical research, medicine, dentistry, physician assistant, pharmacy, or physical therapy among others. Students will have the opportunity to take courses in molecular biology, cell biology, genetics, histology, immunology, parasitology, anatomy, and physiology. While at Southwestern Adventist University, many students work as teaching assistants for lower division labs, gaining valuable experience in the lab and in teaching. Students will also have the opportunity to work alongside faculty on real-world research projects. Additional opportunities are provided through our Pre-Health Professions Club. The department also provides resources to help prepare students for MCAT/DAT, applications, and interviews.

Job Market

Medical Doctor, Respiratory Therapist, Radiographer, Physician Assistant, Pharmacist, Biotechnology Laboratory Technician, Public Health Officer, Health Educator, Science Writer, Physical Therapist, Dentist, Occupational Therapist, Speech-Language Pathologist, Biomedical Research Scientist, Optometrist, Orthotist & Prosthetist, Veterinarian. (Note that many of these careers require additional graduate training. Please consult with your academic advisor for career planning.)

Job Outlook

Job Outlook (next 10 years): 6% growth (as fast as average). Biological Technicians, Median Pay: \$41,650; Job Outlook (next 10 years): 10% (faster than average).

Source: Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, on the Internet at <https://www.bls.gov/ooh/> (visited March 15, 2019).

Earnings

Physicians and Surgeons, Median Pay: \$208,000/year; Job Outlook (next 10 years): 13% growth (faster than average). Physician Assistant, Median Pay: \$104,860/ year; Job Outlook (next 10 years): 37% growth (much faster than average)., Pharmacists Median Pay: \$124,170/year

Source: Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, on the Internet at <https://www.bls.gov/ooh/> (visited March 15, 2019).

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Biology, B.S. Core Curriculum Required of all B.S. students.

Item #	Title	Credits
BIOL 111	General Biology I	4
BIOL 112	General Biology II	4
BIOL 180	Biology Research Seminar	1
BIOL 230	Ecology	4
BIOL 320	Genetics	4
BIOL 419	Philosophy of Science	3
	Sub-Total Credits	20

Required Courses

Item #	Title	Credits
BIOL 340	Cell and Molecular Biology I	4
	Sub-Total Credits	4

Electives (6-8 credit hours) to be selected from the following courses:

In order for BIOL 480 to count as an elective, at least three credit hours of BIOL 480 must be completed and a final presentation must be given.

Item #	Title	Credits
BIOL 318	Microbiology & Immunology	4
BIOL 333	Parasitology	3
BIOL 341	Cell and Molecular Biology II	4
BIOL 410	Human Physiology	4
BIOL 443	Comparative Vertebrate Anatomy	4
BIOL 450	Histology	4
BIOL 455	Immunology	3
BIOL 480	Research in Biology	3
	Sub-Total Credits	6-8

Required Cognates

Item #	Title	Credits
CHEM 111	General Chemistry I	4
CHEM 112	General Chemistry II	4
CHEM 231	Organic Chemistry I	4
CHEM 232	Organic Chemistry II	4
CHEM 431	Biochemistry I	3
PHYS 121	General Physics I	4
PHYS 122	General Physics II	4
	MATH 141 or 180	3-4
	Sub-Total Credits	30-31

Sample 4 Year Curriculum

General Education Requirements

To view general education requirements for this major please visit: <https://catalog.swau.edu/core-curriculum-for-a-bachelors-degree>

First Year First Semester

Item #	Title	Credits
BIOL 111	General Biology I	4
CHEM 111	General Chemistry I	4
ENGL 121	Freshman Composition	3
	Electives for 120	3
BIOL 180	Biology Research Seminar	1
	Sub-Total Credits	15

First Year Second Semester

Item #	Title	Credits
BIOL 112	General Biology II	4
CHEM 112	General Chemistry II	4
MATH 141	Introduction to Probability and Statistics	3
	Religion GE Curriculum Guide	3
UNIV 111	Wellness for Life	2
	Sub-Total Credits	16

Second Year First Semester

Item #	Title	Credits
BIOL 230	Ecology	4
CHEM 231	Organic Chemistry I	4
ENGL 220	Research Writing	3
	Social Science General Education Requirement	3
	Kinesiology GE Curriculum Guide	1
	Sub-Total Credits	15

Second Year Second Semester

Item #	Title	Credits
BIOL 320	Genetics	4
CHEM 232	Organic Chemistry II	4
	Communication General Education Requirement	3
	Religion GE Curriculum Guide	3
	Sub-Total Credits	14

Third Year First Semester

Item #	Title	Credits
BIOL 340	Cell and Molecular Biology I	4
PHYS 121	General Physics I	4
CHEM 431	Biochemistry I	3
	Fine Arts General Education Requirement	3
	Kinesiology GE Curriculum Guide	1
	Sub-Total Credits	15

Third Year Second Semester

Item #	Title	Credits
BIOL 318	Microbiology & Immunology	4
PHYS 122	General Physics II	4
	Elective (Upper Division)	3
	Religion GE Curriculum Guide	3
	Sub-Total Credits	14

Fourth Year First Semester

Item #	Title	Credits
BIOL 333	Parasitology	3
	Religion GE Curriculum Guide	3
	History GE Curriculum Guide	3
	Literature General Education Requirement	3
	Elective (Upper Division)	3
	Sub-Total Credits	15

Fourth Year Second Semester

Item #	Title	Credits
BIOL 419	Philosophy of Science	3
BIOL 410	Human Physiology	4
	History GE Curriculum Guide	3
	Elective (Upper Division)	3
	Elective (Upper Division)	3
	Sub-Total Credits	16