



# Major in Biology, B.S.

(Biomedical Emphasis)

2017-2018

## **Additional Sources of Information**

### **WEBSITE:**

www.swau.edu

### **DEPARTMENT CONTACTS:**

#### Chair

Arthur Schwarz, Ph.D.

#### Faculty

Art Chadwick, Ph.D.

Peter McHenry, Ph.D.

Amy McHenry, Ph.D.

Jared Wood, Ph.D.

### **LOCATION:**

Scales Hall

### **MAIL:**

Department of Biological Sciences

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Molecular and cell biology are increasingly important in biomedical research and professional healthcare careers. Cultivating a deep understanding of the cell 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, 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.

### **Potential Careers:**

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 some of these careers require additional graduate training. Please consult with your academic advisor for career planning.)*

### **Job Market**

*Physicians and Surgeons*, Median Pay: \$187,200/year; Job Outlook (next 10 years): 14% growth (much faster average). *Physician Assistant*, Median Pay: \$98,180/year; Job Outlook (next 10 years): 30% (faster than average). *Pharmacists*, Median Pay: \$121,500/year; Job Outlook (next 10 years): 3% (slower 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 14, 2017).

### **General Education Requirements:**

To view general education requirements for this major please visit [catalog.swau.edu/Undergraduate/2017-2018](http://catalog.swau.edu/Undergraduate/2017-2018).

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## CORE CURRICULUM: REQUIRED OF ALL B.S. BIOLOGY STUDENTS

<b>BIOL 111, 112</b>	General Biology.....	<b>8</b>
<b>BIOL 180</b>	Biology Freshman Seminar .....	<b>1</b>
<b>BIOL 230</b>	Ecology .....	<b>4</b>
<b>BIOL 320</b>	Genetics.....	<b>4</b>
<b>BIOL 419</b>	Philosophy of Science.....	<b>3</b>

## BIOMEDICAL EMPHASIS:

<b>BIOL 340</b>	Cell & Molecular Biology I.....	<b>4</b>
<b>BIOL</b>	Biology Electives (x3).....	<b>9-12</b>

*Electives to be selected from the following courses:*

<b>BIOL 333</b>	Parasitology .....	<b>3</b>
<b>BIOL 341</b>	Cell & Molecular Biology II.....	<b>4</b>
<b>BIOL 410</b>	Human Physiology.....	<b>4</b>
<b>BIOL 443</b>	Comparative Vertebrate Anatomy .....	<b>4</b>
<b>BIOL 450</b>	Histology.....	<b>4</b>
<b>BIOL 455</b>	Immunology .....	<b>3</b>
<b>BIOL 480*</b>	Research in Biology .....	<b>3</b>

**TOTAL: 33-36**

## REQUIRED COGNATES

<b>CHEM 111</b>	General Chemistry I.....	<b>4</b>
<b>CHEM 112</b>	General Chemistry II.....	<b>4</b>
<b>CHEM 231</b>	Organic Chemistry I.....	<b>4</b>
<b>CHEM 232</b>	Organic Chemistry II.....	<b>4</b>
<b>PHYS 121</b>	General Physics I.....	<b>4</b>
<b>PHYS 122</b>	General Physics II.....	<b>4</b>
<b>MATH 121</b>	Precalculus <i>or</i>	
<b>MATH 241</b>	Introduction to Probability & Statistics .....	<b>3</b>
<b>COMM 111</b>	Speech .....	<b>3</b>
<b>CSIS</b>	Computer Science Elective.....	<b>1-3</b>

**TOTAL: 31-33**

\*\*BIOL 480 is a one credit hour course. In order to count as an elective, it must be repeated three times and a final presentation must be given.

## SAMPLE FOUR-YEAR SCHEDULE

	FIRST SEMESTER	SECOND SEMESTER
<i>First Year</i>	BIOL 111—General Biology I.....4 CHEM 111—General Chemistry I.....4 ENGL 121—Freshman Composition.....3 Computer Science Elective.....3 BIOL 180—Biology Freshmen Seminar.....1 <b>TOTAL.....15</b>	BIOL 112—General Biology II.....4 CHEM 112—General Chemistry II.....4 MATH 241—Introduction to Probability and Statistics.....3 Religion Elective.....3 UNIV 111—Wellness for Life.....2 <b>TOTAL.....16</b>
<i>Second Year</i>	BIOL 230—Ecology.....4 CHEM 231—Organic Chemistry I.....4 ENGL 220—Research Writing.....3 Social Science Elective.....3 KINA Activity Elective.....1 <b>TOTAL.....14</b>	BIOL 320—Genetics.....4 BIOL 232—Organic Chemistry II.....4 COMM 111—Speech.....3 Religion Elective.....3 <b>TOTAL.....16</b>
<i>Third Year</i>	BIOL 340—Cell & Molecular Biology I.....4 PHYS 121—General Physics I.....4 CHEM 431—Biochemistry I.....3 History Elective.....3 KINA Activity Course.....1 <b>TOTAL.....15</b>	Biology Elective.....3-4 PHYS 112—General Physics II.....4 CHEM 433—Biochemistry II.....3 History Elective.....3 Religion Elective.....3 <b>TOTAL.....16-17</b>
<i>Fourth Year</i>	Biology Elective.....3-4 Religion Elective.....3 Fine Arts Elective.....3 Elective (U.D.).....3 Elective (U.D.).....3 <b>TOTAL.....15-16</b>	BIOL 419—Philosophy of Science.....3 Biology Elective.....3-4 Literature Elective.....3 Elective (U.D.).....3 Elective (U.D.).....3 <b>TOTAL.....15-16</b>