



**Biology
Bachelor of Arts
Arts & Sciences
Traditional**

Program Coordinator: L. K. Vaughan

The Bachelor of Arts in General Biology is designed for individuals seeking employment not requiring an advanced degree in science or medicine, but where a strong technical background is desirable. This would include such professional career options as scientific or pharmaceutical sales representative, lab technician, scientific writer, public school teacher, law, etc. This curriculum includes 50 semester hours of science and math but has more flexibility than the Bachelor of Science.

The Bachelor of Arts in Human Biology is designed for students who are interested in pursuing an advanced degree in graduate programs related to human health, such as a doctorate in physical therapy (DPT), or graduate degrees in physician's assistant (PA) or occupational health programs such as occupational therapy (OT). This track is *not* designed or intended to meet the needs of students who are pursuing medical, pharmacy, or graduate school in an area of biology or biomedical research. Students interested in those career paths should follow the requirements for a B.S. in Biology in either the General Biology or the Cell and Molecular Biology track.

Students who complete the Bachelor of Arts degree in Biology are required to have a minor; students should choose their minor program in consultation with their academic advisors, taking into account their career goals.

The Bachelor of Arts with secondary education licensure prepares a student for teaching science. Licensed teachers are in great demand nationwide in all areas of science, particularly biology and chemistry. Students obtaining their secondary education licensure will minor in Education. Due to the large number of semester hours required for completion of the BA in Biology with secondary licensure, students should meet regularly with advisors from both Biology and Education.

Clinical Experiences

During completion of course work, it is anticipated that students interested in physical therapy, occupational health, or physician's assistant programs would participate in clinical rotations or internships. Students should be aware that many of these specific graduate programs require up to 1500 hours of patient contact before admission to the respective programs. Thus, students should start accumulating hours the summer after their sophomore year.

Student Learning Outcomes

1. Knowledge of Fundamental Areas of Biology: Students will demonstrate knowledge of fundamental areas of biology.
2. Skills for Appropriate Lab Methodology: Students will develop skills to use appropriate lab methodology to gather data and draw conclusions, and to communicate results in meaningful forms.

3. Written and Oral Communication: Students will be able to write or orally communicate technical information that is suitable for presentation.
4. Progress Toward Science-Related Careers: Identify and participate in experiences (jobs, internships, shadowing, research) related to desired career goals; gain employment in science-related careers or entry into graduate or professional degree programs.

Core Curriculum Requirements

Biology majors should fulfill specified categories of the King Core Curriculum by taking the courses indicated below. See the “The Core Curriculum” section of the catalog for additional details.

Science

CHEM 1110
General Chemistry I..... 4 s.h.

Quantitative Literacy

MATH 2350
Calculus I 4 s.h.

BS in Biology Major Requirements

BIOL 2110
General Biology I..... 4 s.h.
BIOL 2120
General Biology II 4 s.h.
CHEM 1120
General Chemistry II 4 s.h.
CHEM 2110
Organic Chemistry I..... 4 s.h.
PHYS 2210
General Physics I..... 4 s.h.
IDST 4500 (0.5 credits, repeated for a total of four semesters)
Interdepartmental Science and Mathematics Seminar..... 2 s.h.
BIOL 4990
Comprehensive Assessment 0 s.h.

Summary of Total Credits General Biology Track

Core Curriculum 42 s.h.
Major Requirements:
Common Requirements (22 s.h.)
Track Requirements..... (28 s.h.)
Total Major Requirements 50 s.h.
Electives/Second Minor/Second Major 32 s.h.
Minimum to Earn Bachelor of Science 124 s.h.

Track Requirements for a BA in Biology

Students will choose a track in General Biology or Human Biology.

General Biology Track (BA)

BIOL 3100
Plant Biology 4 s.h.
BIOL 3130
Ecology 4 s.h.

BIOL 3760	
Genetics	4 s.h.
<i>Choose from the following courses</i>	<i>4 s.h.</i>
BIOL 3310	
Human and Vertebrate Comparative Anatomy (4 s.h.)	
BIOL 3200	
Histology (4 s.h.)	
BIOL 3260	
Clinical Neuroanatomy (4 s.h.)	
 <i>Choose from the following courses</i>	 <i>4 s.h.</i>
BIOL 3300	
Cell Biology (4 s.h.)	
BIOL 33640	
Neurophysiology (4 s.h.)	
BIOL 3600	
Human and Mammalian Physiology (4 s.h.)	
 <i>Choose from the following courses</i>	 <i>8 s.h.</i>
Any BIOL courses at 3000-level or higher or	
PHYS 2030	
Survey of Astronomy (4 s.h.)	
MATH 1560	
Introduction to Statistics (4 s.h.)	
MATH 2360	
Calculus II (4 s.h.)	

Human Biology Track (BA)

BIOL 1010	
Human Anatomy and Physiology I.....	4 s.h.
BIOL 1020	
Human Anatomy and Physiology II	4 s.h.
ATEP 2510	
Care and Prevention of Athletic Injuries	4 s.h.
ATEP 3680	
Kinesiology.....	4 s.h.
ATEP 3690	
Exercise Physiology.....	4 s.h.
PHED 3550	
Nutrition and Conditioning.....	4 s.h.
PHYS 2220	
General Physics II.....	4 s.h.
 <i>Choose from the following courses</i>	 <i>8 s.h.</i>
BIOL 3760	
Genetics (4 s.h.)	
BIOL 3300	
Cell Biology (4 s.h.)	
BIOL 4400	
Microbiology (4 s.h.)	
BIOL 3200	
Histology (4 s.h.)	

- BIOL 3640
Neurophysiology (4 s.h.)
- BIOL 3260
Clinical Neuroanatomy (4 s.h.)
- BIOL 4670
Mammalian Toxicology (4 s.h.)

Summary of Total Credits Human Biology Track

Core Curriculum	42 s.h.
Major Requirements:	
Common Requirements	(22 s.h.)
Track Requirements	(36 s.h.)
Total Major Requirements	58 s.h.
Electives/Second Minor/Second Major	24 s.h.
Minimum to Earn Bachelor of Science	124 s.h.

Teacher Education - BIOLOGY

The B.A. in Biology (with Licensure for Grades 6-12) is available with modifications to the Biology B.A.–General Biology Track and the King Core Curriculum plus successful completion of the Secondary Education minor. Licensed teachers in secondary education are in great demand in all fifty states, and science is considered a critical need area in K-12 public education by all states.

Declaration of the Education minor and early and frequent advisement is essential to timely completion of degree and licensure requirements. Students seeking teacher licensure will be assigned a secondary education advisor in the Department of Teacher Education, in addition to their major advisor. See the “Admission to the Teacher Education Program” section of this catalog or contact the Certification Advisor in the School of Education for eligibility criteria, admissions procedures, and timelines.

Student Learning Outcomes for Teacher Education

In addition to the discipline specific student learning outcomes for Biology, teacher candidates will demonstrate mastery of the following Student Learning Outcomes, which are aligned with the both Tennessee Teacher Licensure Standards: Professional Education and InTASC Standards: Interstate Teacher Assessment and Support Consortium.

1. The pre-service teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make the discipline(s) accessible and meaningful for learners to assure mastery of the content.
2. The pre-service teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
3. The pre-service teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections and to build skills to apply knowledge in meaningful ways.

Core Curriculum Requirements

Biology majors seeking teaching licensure should fulfill specified categories of the King Core Curriculum by taking the courses indicated below. See the “The Core Curriculum” section of the catalog for additional details on fulfillment of other categories.

Science

CHEM 1110
General Chemistry I..... 4 s.h.

Quantitative Literacy

MATH 2350
Calculus I 4 s.h.

General Science and Physical Science Core Required for 6-12 Licensure

CHEM 1120
General Chemistry II 4 s.h.
CHEM 2110
Organic Chemistry I..... 4 s.h.
GEOG 2010
Physical Geography 3 s.h.
PHYS 2210
General Physics I 4 s.h.

BA In Biology Major Requirements for Teaching Licensure

BIOL 2110
General Biology I..... 4 s.h.
BIOL 2120
General Biology II 4 s.h.
BIOL 3100
Plant Biology 4 s.h.
BIOL 3130
Ecology 4 s.h.
BIOL 3760
Genetics 4 s.h.

Choose from the following courses 4 s.h.

BIOL 3300
Cell Biology (4 s.h.)
BIOL 3640
Neurophysiology (4 s.h.)
BIOL 3600
Human and Mammalian Physiology (4 s.h.)

Choose from the following courses 4 s.h.

BIOL 3310
Human and Vertebrate Comparative Anatomy (4 s.h.)
BIOL 3200
Histology (4 s.h.)
BIOL 3260
Clinical Neuroanatomy (4 s.h.)

Choose from the following courses 4 s.h.

BIOL
Any course at 3000-level or higher (4 s.h.)
PHYS 2030
Survey of Astronomy (4 s.h.)
MATH 1560
Introduction to Statistics (4 s.h.)

MATH 2360	
Calculus II (4 s.h.)	
IDST 4500 (0.5 s.h. repeated for a total of four semesters)	
Interdepartmental Science and Mathematics Seminar.....	2 s.h.
BIOL 4990	
Comprehensive Assessment	0 s.h.

Secondary Education Minor

EDUC 2030	
Introduction to Teaching: K-Grade 12.....	2 s.h.
EDUC 2031	
Introduction to Teaching Practicum: Grades PreK-12	1 s.h.
EDUC 2100	
Survey of Exceptional Children.....	4 s.h.
EDUC 2370	
Reflective Teaching: Planning for Classroom Instruction.....	3 s.h.
EDUC 2900	
Foundations of Education	3 s.h.
EDUC 2950	
Technology for Teachers	2 s.h.
EDUC 3390*	
Secondary Curriculum and Methods	3 s.h.
EDUC 3590*	
Content Area Reading.....	3 s.h.
EDUC 3600*	
Assessment and Evaluation	3 s.h.
PSCI 2120	
Cultural Diversity in America.....	4 s.h.
PSYC 3320	
Adolescent Development.....	4 s.h.
EDUC 4490*	
Student Teaching: Grades 6-10.....	5 s.h.
EDUC 4500*	
Student Teaching: Grades 9-12.....	5 s.h.
EDUC 4940	
Introduction to edTPA	1 s.h.
EDUC 4950*	
Capstone Seminar: Grades K-12	2 s.h.
EDUC 4990	
Comprehensive Assessment (passing state-required Praxis II exams, successful portfolio completion, successful portfolio defense).....	0 s.h.

*Requires admittance to the Teacher Education Program

Summary of Total Credits

Core Curriculum	42 s.h.
Major Requirements.....	49 s.h.
Secondary Education Minor.....	45 s.h.
Minimum to Complete Licensure Program.....	136 s.h.