



**Applied Science and Mathematics
Bachelor of Science
Arts & Sciences
Traditional**

Program Coordinator: W. Linderman

The B.S. in Applied Science and Mathematics is a degree conferred by King University as part of a 3+2 articulation agreement in collaboration with the Tickle College of Engineering at the University of Tennessee. Students majoring in Applied Science and Mathematics will take courses according to prescribed curricula for tracks in Biomedical Engineering, Chemical Engineering, Civil Engineering, or Industrial Engineering.

After three years at King, students in this program will transfer to the University of Tennessee to complete engineering courses for two years in order to earn a B.S. in Engineering at the University of Tennessee. After an approved transfer credit review by King of their engineering-related courses from the University of Tennessee, students will be recommended for conferral of a B.S. in Applied Science and Mathematics from King. As part of an articulation agreement with the University of Tennessee, the B.S. in Applied Science and Mathematics cannot be earned solely at King.

Student Learning Outcomes

1. Students will be able to utilize the techniques of undergraduate mathematics to solve problems.
2. Students will demonstrate the command of basic experimental techniques, including data analysis, and the ability to identify mathematical situations.
3. Students will master various computational techniques and tools for processing data and solving problems.
4. Students will demonstrate the ability to analyze and model physical systems or components by applying knowledge of mathematics and physics. This will include multivariable calculus, differential equations, basic science, and engineering.

Core Curriculum Requirements

Applied Science and Mathematics 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.

Quantitative Literacy

MATH 2350

Calculus I..... 4 s.h.

Science

CHEM 1110

General Chemistry I..... 4 s.h.

Applied Science and Mathematics Major Requirements

(to be taken by all engineering tracks)

CHEM 1120

General Chemistry II 4 s.h.

MATH 2360	
Calculus II.....	4 s.h.
MATH 2370	
Vector Calculus.....	4 s.h.
MATH 2450	
Linear Algebra.....	4 s.h.
MATH 3430	
Differential Equations.....	4 s.h.
PHYS 2210	
General Physics I.....	4 s.h.
PHYS 2220	
General Physics II.....	4 s.h.
PHYS 3030	
Electricity and Magnetism.....	4 s.h.
PHYS 3500	
Computational Physics.....	4 s.h.

Track Requirements for a B.S. in Applied Mathematics and Science

Students will choose a track in Biomedical Engineering, Chemical Engineering, Civil Engineering, or Industrial Engineering.

Biomedical Engineering Track

BIOL 1010	
Human Anatomy and Physiology I.....	4 s.h.
BIOL 1020	
Human Anatomy and Physiology II.....	4 s.h.
ITEC 2010	
Programming for STEM.....	4 s.h.
PHYS 3060	
Introduction to Modern Physics.....	4 s.h.

Summary of Total Credits for the Biomedical Engineering Track

Core Curriculum.....	42 s.h.
Major Requirements.....	52 s.h.
Engineering Courses from University of Tennessee.....	30 s.h.
Minimum to Earn Bachelor of Science.....	124 s.h.

Chemical Engineering Track

BIOL 2110	
General Biology I.....	4 s.h.
BIOL 2120	
General Biology II.....	4 s.h.
BIOL 3300	
Cell Biology.....	4 s.h.
CHEM 2110	
Organic Chemistry I.....	4 s.h.
CHEM 2120	
Organic Chemistry II.....	4 s.h.
CHEM 3000	
Analytical Chemistry I.....	4 s.h.

Summary of Total Credits for the Chemical Engineering Track

Core Curriculum	42 s.h.
Major Requirements.....	60 s.h.
Engineering Courses from University of Tennessee.....	<u>22</u> s.h.
Minimum to Earn Bachelor of Science	124 s.h.

Civil Engineering Track

BIOL 2110	
General Biology I	4 s.h.
ITEC 2010	
Programming for STEM.....	4 s.h.

Summary of Total Credits for the Civil Engineering Track

Core Curriculum	42 s.h.
Major Requirements.....	44 s.h.
Engineering Courses from University of Tennessee.....	<u>38</u> s.h.
Minimum to Earn Bachelor of Science	124 s.h.

Industrial Engineering Track

CHEM 3000	
Analytical Chemistry I.....	4 s.h.
ITEC 2010	
Programming for STEM.....	4 s.h.

Summary of Total Credits for the Industrial Engineering Track

Core Curriculum	42 s.h.
Major Requirements.....	44 s.h.
Engineering Courses from University of Tennessee.....	<u>38</u> s.h.
Minimum to Earn Bachelor of Science	124 s.h.