Program Coordinator: S. Pickard

The chemistry major provides students an opportunity to study chemistry as part of a liberal arts program. There are three tracks within this major: General Chemistry, Health Sciences, or Chemistry Education. The General Chemistry track has a major curriculum patterned after guidelines recommended by the American Chemical Society and is the program recommended for students who wish to pursue graduate studies in chemistry. The Health Sciences track is primarily designed for students who are preparing for a career in a health profession. The Chemistry Education track prepares the student to teach chemistry in a secondary school setting.

Thus, by selecting the correct track, a chemistry major will provide an excellent background for those preparing for medical school, graduate study in chemistry, or chemical engineering. It is valuable for those who seek careers as chemists in industry, government, business, or secondary education, or in science-based activities such as chemical patent work, sales, marketing, or computer science.

Students may also choose combine a modified Chemistry major with a minor in secondary education. Science and mathematics are considered critical need areas in K-12 public education by all states.

Core Curriculum Requirements
Chemistry majors should complete the King Core Curriculum as specified below. For additional course options and descriptions, please see the “The Core Curriculum” section of the catalog.

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

Quantitative Literacy
MATH 2350
Calculus I..................................................................................4 s.h.

BS in Chemistry Major Requirements
CHEM 1120
General Chemistry II.................................................................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.
CHEM 4000  
Physical Chemistry I ..................................................................... 5 s.h.
PHYS 2210  
General Physics I ....................................................................... 4 s.h.
PHYS 2220  
General Physics II ....................................................................... 4 s.h.
IDST 4500  
Interdepartmental Science and Mathematics Seminar .................. 2 s.h.
CHEM 4930  
Chemistry Capstone ..................................................................... 1 s.h.
CHEM 4990  
Comprehensive Assessment ........................................................... 0 s.h.

**Track Requirements for Chemistry**

Students will choose a track in either General Chemistry or Health Sciences Chemistry.

**General Chemistry Track (BS)**

CHEM 3200  
Analytical Chemistry II ................................................................. 4 s.h.
CHEM 4200  
Physical Chemistry II ..................................................................... 5 s.h.
MATH 2360  
Calculus II ..................................................................................... 4 s.h.

*Choose from the following courses* ................................................... 4 s.h.

- MATH 2370  
  Vector Calculus (4 s.h.)
- MATH 3430  
  Differential Equations (4 s.h.)
- PHYS 3060  
  Introduction to Modern Physics (4 s.h.)
- PHYS 3030  
  Electricity and Magnetism (4 s.h.)

*Chemistry majors in the General track are required to have a minor; Physics or Math is recommended.*

**Health Sciences Chemistry Track (BS)**

BIOL 3700  
Biochemistry .................................................................................. 4 s.h.
BIOL 2110  
General Biology I ........................................................................... 4 s.h.
BIOL 2120  
General Biology II ........................................................................... 4 s.h.
Choose from the following ........................................ (at least) 4 s.h.
CHEM 3200
  Analytical Chemistry II (4 s.h.)
CHEM 3300
  Advanced Organic Chemistry (4 s.h.)
CHEM 3600
  Inorganic Chemistry (4 s.h.)
CHEM 4200
  Physical Chemistry II (5 s.h.)

Chemistry majors in the Health Sciences track are required to have a minor; Biology is recommended.

Summary of Total Credits
General Chemistry Track
Core Curriculum.................................................................42 s.h.
Major Common Requirements ...........................................32 s.h.
Track Requirements ...........................................................17 s.h.
Minor in Physics or Mathematics.......................................20 s.h.
Electives/Second Minor/Second Major ..........................13 s.h.
Minimum to Earn Bachelor of Science .........................124 s.h.

Health Sciences Chemistry Track
Core Curriculum.................................................................42 s.h.
Major Common Requirements ...........................................32 s.h.
Track Requirements ...........................................................16 s.h.
Minor in Biology...............................................................20 s.h.
Electives/Second Minor/Second Major .....................14 s.h.
Minimum to Earn Bachelor of Science .........................124 s.h.

Teacher Education - CHEMISTRY
Tennessee teaching licensure (Grades 6-12) is available with modifications to the Chemistry major and the King Core, and successful completion of the Secondary Education minor. Licensed teachers in secondary education are in great demand in all fifty states, and the areas of science, mathematics, English as a second language, and foreign languages are considered a critical need areas in K-12 public education by all states.

Declaration of the 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.
Core Curriculum Requirements
Chemistry 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.

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

Quantitative Literacy
MATH 2350
   Calculus I ............................................................................ 4 s.h.

Literature
Choose from the following courses (pair with history) .......... 4 s.h.
   ENGL 2171
      Western Literature I (4 s.h.)
   ENGL 2172
      Western Literature II (4 s.h.)

History
Choose from the following courses (pair with literature) .......... 4 s.h.
   HIST 2171
      Western Civilization in Global Context I (4 s.h.)
   HIST 2172
      Western Civilization in Global Context II (4 s.h.)

Human Culture
In addition to satisfying the language requirement:
   PSCI 2120
      Cultural Diversity in America.............................................. 4 s.h.

General Science and Physical Science Core
   BIOL 2110
      General Biology I ................................................................. 4 s.h.
   CHEM 1120
      General Chemistry II ............................................................. 4 s.h.
   GEOG 2010
      Physical Geography.............................................................. 3 s.h.
   PHYS 2210
      General Physics I ................................................................ 4 s.h.

BS in Chemistry Major Requirements for Teaching Licensure
   CHEM 2110
      Organic Chemistry I ................................................................. 4 s.h.
   CHEM 2120
      Organic Chemistry II ................................................................. 4 s.h.
   CHEM 3000
      Analytical Chemistry I ............................................................. 4 s.h.
   CHEM 3200
      Analytical Chemistry II ......................................................... 4 s.h.
CHEM 4000
Physical Chemistry I .......................................................... 5 s.h.
Interdepartmental Science Seminar ...................................... 2 s.h.

Choose from the following courses ..................................... 4 s.h.
MATH 2360
   Calculus II (4 s.h.)
CHEM 4200
   Physical Chemistry II (4 s.h.)
PHYS 2220
   General Physics II (4 s.h.)

NOTE: Students in the Chemistry Secondary Education track are not required to
take CHEM 4930 or 4990. Instead they are required to take the PRAXIS
exams for Secondary Education licensure in Chemistry.

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 K-12 ............................................. 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.
EDUC 4490*
   Student Teaching, Grades 6-10 ..................................... 5 s.h.
EDUC 4500*
   Student Teaching, Grades 9-12 ..................................... 5 s.h.
EDUC 4950*
   Capstone Seminar, Grades K-12 .................................... 2 s.h.
PSCI 2120
   Cultural Diversity in America ....................................... 4 s.h.
PSYC 3320
   Adolescent Development ............................................. 4 s.h.

*Requires admittance to the Teacher Education Program
Summary of Total Credits
Core Curriculum.................................................................42 s.h.
Major Requirements .............................................................42 s.h.
Secondary Education Minor ...............................................44 s.h.
Electives .............................................................................. 2 s.h.
Minimum to Complete Licensure Program ....................... 130 s.h.