CHEMISTRY, CONCENTRATION—PROFESSIONAL BIOCHEMISTRY ACADEMIC MAP:
DEGREE BS (120 CREDIT HOURS)

This degree map is a semester-by-semester course schedule for students majoring in Chemistry with a concentration in Professional Biochemistry. The milestones listed to the right of each semester are designed to keep a student on track to graduate in four years. The schedule serves as a general guideline to help build a full schedule each semester. Milestones are courses and special requirements necessary for timely progress to complete a major. When one or more milestones are missed, students should consult with an academic advisor to determine if another degree path would be more suitable.

This program requires 120 hours for graduation and is designed for students pursuing a professional career in:

- medicine,
- dentistry,
- pharmacy, or
- Veterinary medicine.

Students following this curriculum will receive a minor in Biology. A minimum of 53 semester hours in Chemistry is required, 29 of which must be in 3000- and 4000-level courses. Chemistry Majors are recommended to take honors courses.

Upper-division Admission

For admission into the upper-division programs of the Chemistry major, students must complete all of the requirements listed above under General Education Core. In addition, they must have removed all high school deficiencies, passed all required remedial/developmental courses, earned a cumulative grade point average of at least 2.0 on college-level coursework, and completed the Senior Exit Examination. In addition, they must have earned a grade of C or better in CHEM 1110 or 1112, 1111 or 1113, 1120 or 1122, 1121 or 1123, 2100, 2101, 2010 or 2012, 2011 or 2013, 2020 or 2022, and 2021,or 2023. Honors sections of chemistry courses will also fulfill the degree requirements. Chemistry Majors are recommended to take honors courses.

Tennessee State University recognizes that students have diverse learning, life, and professional experiences. The University provides opportunities for students to earn college credit toward the degree through a number of assessment options that evaluate their learning experiences. These paths are grouped under the category "Prior Learning Assessment" (PLA). Various means of earning PLA credit at TSU are the following: Advance Placement Program, American Council of Education (ACE) Military Credit, American Council on Education (ACE) other Assessed Credit, College Level Exam Program (CLEP), DSST Credit by Examination Program (includes DANTES Examination), Institutional Course Challenge Exams (Departmental Exams), International Baccalaureate Credit, Other Military Service, Portfolio Assessment. To learn more about PLA contact your academic advisor or the Office of Student Support Services for Adult and Distance Learners (615) 963-7001.

Department Chair: Dr. Mohammad Karim, Email: mkarim@tnstate.edu
Mapping Coordinator: Dr. Joshua Moore, Email: jmoore17@tnstate.edu
Department Web Address: www.tnstate.edu/chemistry

Fall Schedule		Milestones
Semester 1	**Hrs.**	**Semester 1**
CHEM 1110/1111 OR 1112/1113	4	Minimum grade of "C" required
ENGL 1010	3	Pre-Requisite Course: Must be taken before HIST 2010, HIST 2020, HIST 2030, HIST 2050 AND HIST 2700; Minimum grade "C" Required
MATH 1910	4	Pre-Requisite Course: Must be taken before CHEM 3210/3211, PHYS 2010/2011, PHYS 2020/2021
BIOL 1110/1111	4	
UNIV 1000	1	
Total Hours	**16**	

*An Orientation course taken at another University does **NOT** meet this requirement. Students with less than 60 credit hours must take UNIV 1000 at TSU.

Spring Schedule		Milestones
Semester 2	**Hrs.**	**Semester 2**
CHEM 1120/1121 OR 1122/1123	4	Pre-Requisite Course: Must be taken before CHEM 2010/2011 or 2012/2013, CHEM 2100 / 2101 CHEM 3000; Minimum grade of "C" required.
ENGL 1020	3	Pre-Requisite Course: Must be taken before HIST 2010, HIST 2020, HIST 2030, HIST 2050 AND HIST 2700; Minimum grade "C" Required
BIOL 1120/1121	4	
COMM 2200	3	
Total Hours	**14**	

Fall Schedule		**Milestones**
Semester 3	**Hrs.**	**Semester 3**
CHEM 2010/2011 OR 2012/2013	4	Pre-Requisite Course: Must be taken before CHEM 2020/2021 or CHEM 2022/2023, CHEM 3410/3411 ; Minimum grade of "C" required.
CHEM 2100/2101	4	Pre-Requisite Course: Must be taken before CHEM 4100, CHEM 4700/4701; Minimum grade of "C" required
ENGL Literature *	3	Minimum grade of "C" required
HIST 2010**	3	
Social / Behavior Science***	3	
Total Hours	**17**	

*Courses within the range of ENGL 2012 through ENGL 2322 will meet this requirement.

**The Department recommends HIST 2010; however, HIST 2030, HIST 2050, HIST 2060 or HIST 2700 satisfy this requirement.

***The following courses can meet the Social Science requirement AFAS 2010, ANTH 2300, ECON, 2010, GEOG 1010, HPSS 1510, POLI 1010 PSYC 2010, WMST 2000, and URBS 2010.

Spring Schedule		Milestones
Semester 4	**Hrs.**	**Semester 4**
CHEM 2020/2021 or CHEM 2022/2023	4	Minimum grade "C" required
Humanities*	6	
Social / Behavior Science**	3	
HIST 2020***	3	
Total hours	**16**	

*Students must take 6 credit hours from the following list of approved general education Humanities courses: AREN 2310, ART, 1010, HIST 1000, THTR 1020, MUSC 1010, PHIL 1030, or RELS 2010.

**The following courses can meet the Social Science requirement AFAS 2010, ANTH 2300, ECON, 2010, GEOG 1010, HPSS 1510, POLI 1010 PSYC 2010, WMST 2000, and URBS 2010.

***The Department recommends HIST 2010; however, HIST 2030, HIST 2050, HIST 2060 or HIST 2700 satisfy this requirement.

Fall Schedule		Milestones
		Students must have completed 63 hours and should be admitted into Upper Division with Chemistry Major.
Semester 5	**Hrs.**	**Semester 5**
CHEM 3210, 3211	4	Minimum grade “C” required
CHEM 3410, 3411	4	Pre-Requisite Course: Must be taken before CHEM 3420/3421; Minimum grade “C” required
PHYS 2010, 2011	4	
Total hours	**12**	

Spring Schedule		Milestones
Semester 6	**Hrs.**	**Semester 6**
CHEM 3220/3221	3	Pre-Requisite Course: Must be taken before CHEM 4505, CHEM4506, CHEM 4910, CHEM 4920; Minimum grade “C” required
CHEM 4100	2	Minimum grade “C” required
CHEM 3420/3421	4	Minimum grade “C” required
PHYS 2020/2021	4	
Total hours	**13**	

Fall Schedule		Milestones
Semester 7	**Hrs.**	**Semester 7**
CHEM 3000	3	Minimum grade “C” required
CHEM 4505	2	Minimum grade “C” required
CHEM 4910	1	Minimum grade “C” required
CHEM 4700/4701	4	Minimum grade “C” required
BIOL ELECTIVE 3000-4000 LEVEL	4	
ANY ELECTIVE 3000-4000 LEVEL*	3	
Total hours	**17**	

*Students may take a course from ANY academic department on the 3000-4000 level, but preferably Chemistry courses should be selected.

Spring Schedule		Milestones
Semester 8	**Hrs.**	**Semester 8**
		Take Senior Exit Exam and Apply for Graduation
CHEM 4506	2	Minimum grade “C” required
CHEM 4920	1	Minimum grade “C” required
BIOL ELECTIVE 3000-4000 LEVEL	4	
ANY ELECTIVE 3000-4000 LEVEL*	8	
Total hours	**15**	

*Students may take a course from ANY academic department on the 3000-4000 level, but preferably Chemistry courses should be selected.

Employment Information:
About 25% of students who major in chemistry work as chemists. Chemists develop products that we rely on each day. Without chemists, we wouldn't have clean water and medicines. Some of the fabrics that we wear wouldn't exist without chemists, and believe it or not, neither would many of the foods in our refrigerators. If you want to pursue a career where you can have an impact on the lives of people throughout the world, then a chemistry degree can provide the background that you need to do so. Not all graduates from chemistry programs go on to work as chemists, though. While many do work in a field closely related to chemistry, others choose to take a completely different path. Sales and teaching positions are among the most common career choices for those who pursue a career in an unrelated field. It's very common for chemistry majors to attend graduate school after they complete their undergraduate studies. These graduates make great candidates for medical school, optometry school, dental school, pharmacy school, and veterinary school. Since chemistry majors develop strong research skills, they are also successful in law school, and many go on to work as patent lawyers.

Representative Job Titles Related to this Major:
Chemist, environmental and agricultural; Analyst, Laboratory Assistant/Technician; Sales representative; Crime-lab analyst. With further study: Physician, Veterinarian; Writer, technical/scientific, Biochemist, Pharmacologist, Teacher, Dentist, Industrial Health Engineer, Professor, Consumer Safety Officer.

Representative Employers:
Manufacturing & processing firms, Pharmaceutical manufacturers, Utilities companies, Professional & technical Journals, mining petroleum companies, Chemical Industries, Schools, colleges, and universities, medical laboratories, hospitals, business corporations, Governmental agencies - local, state, federal.

International study is available for all TSU students and may include opportunities for internships or taking course work towards various minors. International study may have an impact on the MAP; therefore, it is important to consult with the academic advisor for this major before participating in an international Program opportunity. Students interested in study abroad opportunities should contact the Office of International Programs and consult with their academic advisor.