

**CHEMISTRY, CONCENTRATION-TEACHER CERTIFICATION FOR GRADES 7-12 ACADEMIC MAP:
DEGREE BS (121 CREDIT HOURS)**

This degree map is a semester---by---semester sample course schedule for students majoring in **Chemistry with a concentration in Teacher Certification for Grades 7-12**. 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.

Chemistry majors seeking teaching certification in secondary education must complete minimum of 121 semester hours, which include:

- ☐ General education courses (42 hours),
- ☐ Professional education courses (31 hours, including a 9-hour course in enhanced student teaching), and
- ☐ Major concentration of content and knowledge courses (32 hours).

The required courses in Chemistry are 1110, 1111, 1120, 1121, 2100, 2101, 2010, 2011, 2020, 2021, 3000, 3210, 3211, 3410, 3710, 4705, 472 and 4910. Successful completion of this program provides one with license to teach Chemistry in grades 7-12 in Tennessee public schools.

Students seeking the Bachelor of Science Degree with licensure must make written application for admission to the Teacher Education Program in the College of Education, usually in the second semester of the sophomore year. They must have a 2.75 cumulative quality point average at time of application and must pass the Praxis Core Test (PPST) or the Computer---Based Academic Skills Assessments Test (CBT). Students who have previously earned a 21 on the ACT, 22 on the Enhanced ACT, or a combined 1020 on the verbal and mathematical portions of the SAT are exempt from the PPST and the CBT. Enhanced student teaching requires placement of eight weeks at the secondary level and seven weeks at the middle school level. For a complete list of requirements for admission to and retention in the Teacher Education Program, see the College of Education section.

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: Advanced Placement Program, American Council of Education (ACE) Military 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 at (615) 963-7001 or adultstudentsupport@tnstate.edu.

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Fall Schedule		Milestones
Semester 1	Hrs.	Semester 1
CHEM 1110, 1111 OR 1112, 1113	4	Pre-Requisite Course: Must be taken before 1120/1121 OR 1122/1123. Minimum Grade "C" required. Must have completed MATH 1110
ENGL 1010	3	Pre-Requisite Course: Must be taken before ENGL 1020, and HIST 2010, HIST 2020, HIST 2030, HIST 2060, HIST 2070, or HIST 2700; Minimum Grade "C" Required
MATH 1910	4	Prerequisite: ACT Score>23, or completion of MATH 172 or 1830.
Humanities*	3	Must be chosen from the approved list
UNIV 1000**	1	Must be completed during the first semester.
Total hours	15	

*Students must take a 3 credit hour course 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.

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, CHEM 2100/2101, CHEM 3210/3211, CHEM 3000; Must have completed CHEM 111 with Lab
ENGL 1020	3	Pre-Requisite Course: Must be taken before taking HIST 2010, HIST 2020, HIST 2030, HIST 2060, HIST 2070, or HIST 2700; Minimum Grade "C" Required
Social / Behavioral Science*	3	
COMM 2200	3	
Humanities**	3	Must be chosen from the approved list.
Total hours	16	

*Students must take 3 credit hours from the following list of approved general education Social / Behavior Science courses: AFAS 2010, ANTH 2300, ECON, 2010, GEOG 1010, HPSS 1510, POLI 1010 PSYC 2010, WMST 2000, and URBS 2010.

**Students must take a 3 credit hour course 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.

Fall Schedule		Milestones
Semester 3	Hrs.	Semester 3
		Student should meet with academic advisor and declare Chemistry With Teacher Education as a major. If a minimum ACT (22) or SAT (1020) is not met then Praxis Core is required-Reading 5712 (qualifying score 156), Writing 5722 (qualifying score 162), Math 573 (qualifying score 150) before applying for admission to Teacher Education in Semester 4.
CHEM 2010, 2011 OR 2012, 2013	4	Pre-Requisite Course: Must be taken before CHEM 2020/2021 OR 2022/2023, CHEM 4910; Minimum Grade "C" required. Must have completed CHEM 1120
CHEM 2100, 2101	4	Minimum Grade "C" required.
ENGL Literature*	3	Minimum Grade "C" required.
PHYS 2010, 2011	4	Pre-Requisite Course: Must be taken before PHYS 2020/2021
HIST 2010**	3	
Total hours	18	

*Courses within the range of ENGL 2012 through ENGL 2320 will meet this requirement.

**The Department recommends HIST 2010; however, HIST 2030, HIST 2060, HIST 2070 or HIST 2700 will satisfy this requirement.

Spring Schedule		Milestones
Semester 4	Hrs.	Semester 4
		Apply for Admission to Teacher Education/Pre-Residency. Minimum GPA 2.75; satisfactory report on Criminal Background Check; successful interview; satisfactory writing sample. Check for "C" or higher in Freshmen and Sophomore courses.
CHEM 2020, 2021 or 2022, 2023	4	Minimum Grade "C" required.
HIST 2020*	3	
Social/Behavioral Science**	3	
EDCI 2010	3	Minimum Grade of "C" required
PHYS 2020, 2021	4	Prerequisite: PHYS 2010 and 2011
Total hours	17	

*The Department recommends HIST 2020; however, HIST 2030, HIST 2060, HIST 2070 or HIST 2700 satisfy this requirement.

**Students must take 3 credit hours from the following list of approved general education Social/Behavioral Science courses: AFAS 2010, ANTH 2300, ECON 2010, GEOG 1010, HPSS 1510, POLI 1010, PSYC 2010, WMST 2000 and URBS 2010.

Fall Schedule		Milestones
Semester 5-Pre-Residency	Hrs.	Semester 5
		Take the Praxis II Exam-5245Chemistry Education (K-12) Content Knowledge (qualifying score 152). At the beginning of this semester, students must make application to the Teacher Education Program (Pre-Residency). A GPA of 2.75 is required and must be maintained throughout the program.
Pre-Residency-Block 1		
CHEM 3210, 3211	4	Minimum Grade "C" required.
CHEM 3000	3	Minimum Grade "C" required.
BIOL 1110, 1111	4	
EDSE 3330	3	
Total hours	14	

Spring Schedule		Milestones
Semester 6– Pre-Residency	Hrs.	Semester 6
		Pre-requisite: Complete Intent to Enter Residency-I Form and submit to the Office of Teacher Education and Student Services. Apply for Admission to Residency 1; Take required Praxis II Tests.
Pre-Residency-Block 2		
CHEM 3410	3	Minimum Grade “C” required.
BIOL 1120, 1121	4	
EDCI 3870	3	
PSYC 2420	3	
Total hours	13	

Fall Schedule		Milestones
Semester 7– Residency 1	Hrs.	Semester 7
		Prerequisite: Submit permission to enter Residency 1. Co-requisite: Apply for admission Residency II (full time teaching) and submit all Praxis Subject Assessments and other required documentation. Engage in a minimum of 50% onsite clinical experience.
		Engage in a minimum of 50% onsite clinical experience
CHEM 3710 or BIOL 3710	3	Co-requisite courses: Block 3 (EDCI 4620; EDCI 4910); Minimum Grade of “C” Required
CHEM 4910	1	Minimum Grade “C” required.
EDCI 4620	6	
EDRD 4910	3	
BIOL 4130 or 4140	3	
Total hours	16	

Spring Schedule		Milestones
Semester 8– Residency 2	Hrs.	Semester 8
		Pre-Requisite: Students must be admitted to Residency II. Students must have successfully completed all requirements for Block 3 Residency I and passed all Praxis exams. All Co-Requisite courses in Residency II block 4 must be taken in semester or student will have to wait for the next course rotation. Students must engage in full time teaching co-teaching (100% clinical experience). Students should apply for teacher licensure in the last month of semester 8.
CHEM 4720	9	Co-Requisite Course: Block 4 (EDCI4705 - 1 weeks/M-F in field); Minimum Grade “B” required for recommendation for license. Grade “C” or “D” may graduate.
EDCI 4705	3	Minimum Grade “C” required
Total hours	12	NOTE: At the end of Student Teaching, students must complete the edTPA (portfolio) with a minimum score of 37 out of 75 and Teacher Education Exit Interview.

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, quality control chemist, laboratory technician, technical sales representative, chemical and drug sales representative, consumer protection specialist, water quality analyst / technician, technical writer, aerosol development manager, quality assurance chemist, methods development chemist, process development chemist, organic mass spectrometrists, forensic lab analyst, pulp and paper chemist, paint formulation chemist, paper product developer, chemical information specialist, occupational health and safety officer, medical laboratory technician analytic chemist, associate chemist, research assistant, chemical safety officer, clinical technician, food and drug analyst, pollution controller, information analyst soil tester laboratory analyst chemical technologist assayer product tester, production chemist, lab coordinator, chemical analyst, pest control technician, textile chemist, occupational hygienist, geologist, color development specialist, environmental engineer, geochemist, industrial hygienist, teacher, crime lab analyst, medical technologist

Representative Employers:

High Schools, science museums, quality control laboratories, mineral and metal industries, hospital research laboratories, industrial laboratories, food and beverage companies, health protection branches, waterworks departments, hazardous waste management, chemical testing companies, research centers/institutes, cosmetic companies, utility companies, chemical distributors, hospitals, newspapers/magazines, oil companies, chemistry consulting firms, environmental consulting, pulp and paper industries, chemical laboratories, agricultural companies, professional chemical societies, textile manufacturers, police laboratories, chemical manufacturing, petroleum refineries, government, aerospace companies, technical librarian.

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 academic 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.

This map is not intended to be a contract, either expressed or implied, between the University and the students, but represents a flexible program of the current curriculum which may be altered from time to time to carry out the academic objectives of the University. TSU specifically reserves the right to change, delete or add to any MAP at any time within the student's period of study at the University.