CHEMISTRY (BS) -SECONDARY EDUCATION

Program Map

Course	Title	Credit Hours
First Year Fall		
CHEM 1211	Principles of Chemistry I (minimum grade of C)	3
CHEM 1211L	Principles of Chemistry I Lab (minimum grade of C)	1
MATH 1113	Pre-Calculus (minimum grade of C)	4
ENGL 1101	English Composition I (minimum grade of C)	3
Arts, Humanities, and Ethics	Fine Arts	3
KINS 1106 or PHED 1205	Lifetime Wellness or Concepts of Fitness	2
CHEM 1715	Introductory Chemistry Seminar (Area G) 1	1
Spring	Credit Hours	17
CHEM 1212	Principles of Chemistry II (minimum grade of C) 2	3
CHEM 1212L	Principles of Chemistry II Lab (minimum grade of C) 2	1
MATH 1131	Calculus with Analytic Geometry I	4
ENGL 1102	English Composition II (minimum grade of C)	3
HIST 2111 or HIST 2112	U. S. History to 1865 or U. S. History since 1865	3
Health and Wellness	PEDS Physical Education	1
Institutional Priorities	ITDS 1779 (2), LEAD 1705 (2), PERS 1506 (1; may be repeated with different topic), PERS 1507 (2)	1
	Credit Hours	16
Second Year		
Fall		
CHEM 3111	Organic Chemistry I (minimum grade of C) 3	3
CHEM 3311	Organic Chemistry I Lab (minimum grade of C) 3	1
PHYS 1111	Introductory Physics I (minimum grade of C)	3
PHYS 1311	Introductory Physics I Lab (minimum grade of C)	1
BIOL 1231K		4
Arts, Humanities, and Ethics	Humanities Elective (ITDS 2125 recommended) ⁴	3
UTCH 1201	Step I: Inquiry Approaches to Teaching	1
	Credit Hours	16

Spring		
PHYS 1112	Introductory Physics II (minimum grade of C)	3
PHYS 1312	Introductory Physics II Lab (minimum grade of C)	1
BIOL 1232K		4
Institutional Priorities	COMM 1110 Public Speaking or foreign language 1001, 1002, 2001, 2002 ⁵	3
UTCH 1202	Step II: Inquiry-Based Lesson Design	1
Social Sciences	World Culture Elective	3
Third Year	Credit Hours	15
Fall		
CHEM 2115	Quantitative Chemical Analysis (minimum grade of C) ⁶	3
CHEM 2315	Quantitative Chemical Analysis Lab (minimum grade of C) ⁶	1
UTCH 2105	Knowing and Learning in Mathematics and Science	3
Program Requirements	Foreign Language (1002)	3
POLS 1101	American Government	3
Select one of the	following:	3
ITDS 2125 or UTCH 2203	Historical Perspectives on the Philosophy of Science and Mathematics (if not taken in Area C) ⁷ or Step III: Technological and Pedagogical Content Knowledge	
	- U	16
	Credit Hours	10
Spring	Credit Hours	10
Spring CHEM 4175	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸	3
Spring CHEM 4175 CHEM 4375	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C)	3
Spring CHEM 4175 CHEM 4375 CHEM 3135	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C)	3
Spring CHEM 4175 CHEM 4375 CHEM 3135 CHEM 3335	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C)	3 1 3 1
Spring CHEM 4175 CHEM 4375 CHEM 3135 CHEM 3335 CHEM 1401	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Elementary Statistics	3 1 3 1 3 3
Spring CHEM 4175 CHEM 4375 CHEM 3135 CHEM 3335 STAT 1401 Program Requirements	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Elementary Statistics Foreign Language (2001)	3 1 3 1 3 3 3
Spring CHEM 4175 CHEM 4375 CHEM 3135 CHEM 3335 STAT 1401 Program Requirements UTCH 3205	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Elementary Statistics Foreign Language (2001) Classroom Interactions	3 1 3 1 3 3 3 3
Spring CHEM 4175 CHEM 4375 CHEM 3135 CHEM 3335 STAT 1401 Program Requirements UTCH 3205	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Elementary Statistics Foreign Language (2001) Classroom Interactions Credit Hours	3 1 3 1 3 3 3 3 17
Spring CHEM 4175 CHEM 4375 CHEM 3135 CHEM 3335 STAT 1401 Program Requirements UTCH 3205 Fourth Year Fall	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Elementary Statistics Foreign Language (2001) Classroom Interactions Credit Hours	10 3 1 3 3 3 3 17
Spring CHEM 4175 CHEM 4375 CHEM 3135 CHEM 3335 CHEM 3335 STAT 1401 Program Requirements UTCH 3205 Fourth Year Fall UTCH 3215	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Elementary Statistics Foreign Language (2001) Classroom Interactions Credit Hours Research Methods	10 3 1 3 1 3 3 3 17 3 3 3 3 3 3 3 3 3 3 3
Spring CHEM 4175 CHEM 4375 CHEM 3135 CHEM 3335 CHEM 3335 CHEM 3335 STAT 1401 Program Requirements UTCH 3205 CHEM 3205 CHEM 3215 UTCH 3215	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Elementary Statistics Foreign Language (2001) Classroom Interactions Credit Hours Research Methods Inquiry-Based Instruction	3 1 3 1 3 3 3 3 17 3 3 3 3 3 3
Spring CHEM 4175 CHEM 4375 CHEM 3135 CHEM 3335 CHEM 3335 STAT 1401 Program Requirements UTCH 3205 VTCH 3205 UTCH 3215 UTCH 4205 Social Sciences	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Elementary Statistics Foreign Language (2001) Classroom Interactions Credit Hours Research Methods Inquiry-Based Instruction Behavioral Science Elective	10 3 1 3 3 3 3 17 3 3 3 3 3 3 3 3 3
Spring CHEM 4175 CHEM 4375 CHEM 3135 CHEM 3335 STAT 1401 Program Requirements UTCH 3205 Fourth Year Fall UTCH 3215 UTCH 4205 Social Sciences CHEM 4115	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Elementary Statistics Foreign Language (2001) Classroom Interactions Credit Hours Research Methods Inquiry-Based Instruction Behavioral Science Elective Foundations of Physical Chemistry (minimum grade of C)	10 3 1 3 3 3 3 17 3 3 3 3 3 3 3 3 3
Spring CHEM 4175 CHEM 4375 CHEM 3135 CHEM 3335 CHEM 3335 STAT 1401 Program Requirements UTCH 3205 CHEM 4205 Social Sciences CHEM 4315	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Elementary Statistics Foreign Language (2001) Classroom Interactions Credit Hours Research Methods Inquiry-Based Instruction Behavioral Science Elective Foundations of Physical Chemistry Lab (minimum grade of C) Foundations of Physical Chemistry Lab (minimum grade of C)	10 3 1 3 3 3 3 3 3 3 3 3 3 3 3 1 7
Spring CHEM 4175 CHEM 4375 CHEM 3135 CHEM 3335 STAT 1401 Program Requirements UTCH 3205 Fourth Year Fall UTCH 3215 UTCH 4205 Social Sciences CHEM 4115 CHEM 4315	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Elementary Statistics Foreign Language (2001) Classroom Interactions Credit Hours Research Methods Inquiry-Based Instruction Behavioral Science Elective Foundations of Physical Chemistry Lab (minimum grade of C) Foundations of Physical Chemistry Lab (minimum grade of C) Capstone Seminar (minimum grade of C)	10 3 1 3 3 3 3 17 3 3 3 3 3 3 1 1 1
Spring CHEM 4175 CHEM 4375 CHEM 3335 CHEM 3335 STAT 1401 Program Requirements UTCH 3205 VTCH 3205 UTCH 3215 UTCH 4205 Social Sciences CHEM 4115 CHEM 4315	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Elementary Statistics Foreign Language (2001) Classroom Interactions Credit Hours Research Methods Inquiry-Based Instruction Behavioral Science Elective Foundations of Physical Chemistry Lab (minimum grade of C) Foundations of Physical Chemistry Lab (minimum grade of C) Capstone Seminar (minimum grade of C) Credit Hours	10 3 1 3 3 3 3 3 3 3 3 3 3 3 3 17 17 3 3 3 3
Spring CHEM 4175 CHEM 4375 CHEM 3135 CHEM 3335 CHEM 3335 CHEM 3335 CHEM 3335 CHEM 4315 CHEM 4315 CHEM 4794 CHEM 4794	Credit Hours Instrumental Methods of Chemical Analysis (minimum grade of C) ⁸ Instrumental Methods of Chemical Analysis Lab (minimum grade of C) Inorganic Chemistry (minimum grade of C) Inorganic Chemistry Lab (minimum grade of C) Elementary Statistics Foreign Language (2001) Classroom Interactions Credit Hours Research Methods Inquiry-Based Instruction Behavioral Science Elective Foundations of Physical Chemistry Lab (minimum grade of C) Foundations of Physical Chemistry Lab (minimum grade of C) Capstone Seminar (minimum grade of C) Credit Hours	10 3 1 3 3 3 3 3 3 3 3 3 3 3 17 3 3 3 3 17 17 14

UTCH 4795	Student Teaching Seminar	1
SPED 4115	Teaching Math and Science to Exceptional Learners (see note below)	2
There is a recent rule change for certification from the GaPSC. As of July 1, 2019, students must make a B or higher in the Exceptional Children's course. The course could be any of the following depending on your major. SPED 2256, EDCI 6228, KINS 4245, SPED 4115, PHED 6219 This rule change will not affect your graduation but you cannot become a certified educator with the state of Georgia until you receive the grade of B or higher in this course.		
	One distance	10

Credit Hours	12
Total Credit Hours	123

- ¹ This course can be taken Fall 1 or Spring 1, depending on when course is offered.
- ² The Principles of Chemistry sequence are offered each semester and summer. These must be completed by the summer.
- ³ Organic Chemistry 1 and the co-requisite lab are only offered in the fall semester.
- ⁴ ITDS 2125 Historical Perspectives on the Philosophy of Science and Mathematics is required for this degree track. It can be taken either as a Humanities course (in the Arts/Humanities/Ethics course choice) or in Program Requirements, as extra credits added to the degree program.
- ⁵ Enroll in foreign language 1001 if you need a refresher course or want to start a new language.
- ⁶ Quantitative Chemical Analysis and the co-requisite lab are only offered in the fall semester.
- ⁷ If ITDS 2125 Historical Perspectives on the Philosophy of Science and Mathematics is not taken in Fall 2 as an Area C Humanities course, then take it in Fall 3 as an Area G requirement.
- ⁸ Instrumental Analysis and the co-requisite lab are only offered in the spring semester.
 - To graduate, a student must have 39 credits of upper-division courses (3000 level or higher). These courses may be in any discipline.
 - A grade of "C" or higher is required for all chemistry courses.
 - The prerequisite for Principles of Chemistry 1 (CHEM 1211 Principles of Chemistry I) and its co-requisite lab is College Algebra (MATH 1111 College Algebra) with a grade of "C" or higher or placement in MATH 1113 Pre-Calculus or higher.
 - Introductory Physics 1 and 2 are required for completion of the B.S. in chemistry.
 - The prerequisite for Introductory Physics 1 (PHYS 1111 Introductory Physics I) and its lab is pre-calculus (MATH 1113 Pre-Calculus) or higher.
 - The prerequisite for Organic Chemistry 2 (CHEM 3112 Organic Chemistry II) and its co-requisite lab (CHEM 3312 Organic Chemistry II Lab) are Organic Chemistry 1 (CHEM 3111 Organic Chemistry I) and its co-requisite lab (CHEM 3311 Organic Chemistry I Lab) with a "C" or higher in each.
 - The prerequisite for Biochemistry 1 (CHEM 3141 Biochemistry I) and its co-requisite lab (CHEM 3345 Biochemistry Lab I) are Organic Chemistry 1 (CHEM 3111 Organic Chemistry I) and its co-requisite lab (CHEM 3311 Organic Chemistry I Lab) with a "C" or higher in each.
 - The prerequisite for Inorganic Chemistry (CHEM 3135 Inorganic Chemistry) and its co-requisite lab (CHEM 3335 Inorganic Chemistry

Lab) are Organic Chemistry 2 (CHEM 3112 Organic Chemistry II) and its co-requisite lab (CHEM 3312 Organic Chemistry II Lab) with a "C" or higher.

- The prerequisite for Foundations of Physical Chemistry (CHEM 4115 Foundations of Physical Chemistry and its co-requisite lab (CHEM 4315 Foundations of Physical Chemistry Lab are Calculus 1 (MATH 1131 Calculus with Analytic Geometry I) and Introductory Physics 2 (PHYS 1112 Introductory Physics II) and its lab with a "C" or higher.
- Foundations of Physical Chemistry lecture and lab may be offered at night, i.e. 4:30 5:45 for the lecture and 6:00 8:50 for lab.
- The prerequisite for Instrumental Methods of Chemical Analysis (CHEM 4175 Instrumental Methods of Chemical Analysis and its corequisite lab (CHEM 4375 Instrumental Methods of Chemical Analysis Lab are Quantitative Chemical Analysis (CHEM 2115 Quantitative Chemical Analysis) and its co-requisite lab (CHEM 2315 Quantitative Chemical Analysis Lab), Organic Chemistry 2 and its co-requisite Lab (CHEM 3312 Organic Chemistry II Lab), and Calculus 1 (MATH 1131 Calculus with Analytic Geometry I). A minimum grade of "C" or higher is required to satisfy the prerequisite requirement.
- Inorganic Chemistry and its co-requisite lab (CHEM 3135 Inorganic Chemistry and CHEM 3335 Inorganic Chemistry Lab) may be offered in the fall or spring semester.
- Quantitative Analysis and its co-requisite lab (CHEM 2115 Quantitative Chemical Analysis and CHEM 2315 Quantitative Chemical Analysis Lab) are only offered in the fall semester.
- Instrumental Methods of Chemical Analysis (CHEM 4175 Instrumental Methods of Chemical Analysis) is only offered in the spring semester.
- Inorganic Chemistry and its co-requisite lab (CHEM 3135 Inorganic Chemistry and CHEM 3335 Inorganic Chemistry Lab) may be offered in the fall or spring semester.
- Organic Chemistry 1 and its co-requisite lab (CHEM 3111 Organic Chemistry I and CHEM 3311 Organic Chemistry I Lab) are only offered in the fall semester and Organic Chemistry 2 and its co-requisite lab (CHEM 3112 Organic Chemistry II and CHEM 3312 Organic Chemistry II Lab) are only offered in the spring semester.

Program Map