CHEMISTRY (BS) - ACS CERTIFIED TRACK

Program Map

Course	Title	Credit Hours
First Year		
Fall		
CHEM 1211	Principles of Chemistry I (minimum grade of C) [1]	3
CHEM 1211L	Principles of Chemistry I Lab (minimum grade of C) [1]	1
MATH 1113	Pre-Calculus (minimum grade of C)	4
ENGL 1101	English Composition I (minimum grade of C)	3
CHEM 1715	Introductory Chemistry Seminar (Area H; minimum grade of C) [2]	1
POLS 1101	American Government	3
	Credit Hours	**15**
Spring		
CHEM 1212	Principles of Chemistry II (minimum grade of C) [1]	3
CHEM 1212L	Principles of Chemistry II Lab (minimum grade of C) [1]	1
MATH 1131	Calculus with Analytic Geometry I (minimum grade of C)	4
ENGL 1102	English Composition II (minimum grade of C)	3
Area B2	ITDS 1779 (2), LEAD 1705 (2), PERS 1506 (1; may be repeated with different topic), PERS 1507 (2)	1
AREA B1	COMM 1110 Public Speaking or foreign language 1001, 1002, 2001, 2002	3
	Credit Hours	**15**
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 2211	Principles of Physics I (minimum grade of C)	3
PHYS 2311	Principles of Physics I Lab (minimum grade of C)	1
MATH 1132	Calculus with Analytic Geometry II (minimum grade of C)	4
CHEM 4899	Supervised Undergraduate Research (minimum grade of C)	2
Select one PEDS course (https://catalog.columbusstate.edu/course-descriptions/peds/#peds)		1
	Credit Hours	**15**
Spring		
CHEM 3112	Organic Chemistry II (minimum grade of C) [4]	3
CHEM 3312	Organic Chemistry II Lab (minimum grade of C) [4]	1
PHYS 2212	Principles of Physics II (minimum grade of C)	3
PHYS 2312	Principles of Physics II Lab (minimum grade of C)	1
MATH 2135	Calculus with Analytic Geometry 3	4
KINS 1106 or PHED 1205	Lifetime Wellness or Concepts of Fitness	2
AREA H	Program Elective (minimum grade of C) [7]	3
	Credit Hours	**17**
Third Year		
Fall		
CHEM 2115	Quantitative Chemical Analysis (minimum grade of C) [5]	3
CHEM 2315	Quantitative Chemical Analysis Lab (minimum grade of C) [5]	1
CHEM 3141	Biochemistry I (minimum grade of C)	3
CHEM 3345	Biochemistry Lab I (minimum grade of C)	1
AREA C	Humanities Elective (ENGL 2111, ENGL 2112, ITDS 1145, ITDS 1155, ITDS 1774, ITDS 2125, or PHIL 2010)	3
AREA H	Program Electives (minimum grade of C) [7]	5
	Credit Hours	**16**
Spring		
CHEM 4175	Instrumental Methods of Chemical Analysis (minimum grade of C) [6]	3
CHEM 4375	Instrumental Methods of Chemical Analysis Lab (minimum grade of C) [6]	1
STAT 1401	Elementary Statistics	3
AREA C	Fine Arts (ARTH 1100, ARTH 2125, ARTH 2126, ITDS 1145, MUSC 1100, or THEA 1100)	3
AREA H	Program Elective (minimum grade of C) [7]	3
AREA I	Elective	3
	Credit Hours	**16**
Fourth Year		
Fall		
CHEM 4115	Foundations of Physical Chemistry (minimum grade of C)	3
CHEM 4315	Foundations of Physical Chemistry Lab (minimum grade of C)	1
CHEM 4794	Capstone Seminar (minimum grade of C)	1
AREA E	Behavioral Science (ECON 2105, ECON 2106, PHIL 2030, PSYC 1101, SOCI 1101)	3
HIST 2111 or HIST 2112	U. S. History to 1865 or U. S. History since 1865	3
AREA H	Program Elective (minimum grade of C) [7]	3
AREA I	Elective	2
	Credit Hours	**16**
Spring		
CHEM 4116	Advanced Physical Chemistry (minimum grade of C)	3
CHEM 3135	Inorganic Chemistry (minimum grade of C)	3

CHEM 3335	Inorganic Chemistry Lab (minimum grade of C)	1
AREA E	World Culture (ARTH 1105, ARTH 1107, ARTH 2105, ARTH 2136, ENGL 2136, GEOL 1101, HIST 1111, HIST 1112, or ITDS 1156)	3
AREA I	Elective	3
*EST Major Field Test		
	Credit Hours	**13**
	Total Credit Hours	**123**

1 The Principles of Chemistry sequence are offered each semester and summer. These must be completed by the summer.
2 Introductory Chemistry Seminar is only offered in the fall semester.
3 Organic Chemistry I and the co-requisite lab are only offered in the fall semester.
4 Organic Chemistry 2 and the co-requisite lab are only offered in the spring semester.
5 Quantitative Chemical Analysis and the co-requisite lab is only offered in the fall semester.
6 Instrumental Analysis and the co-requisite lab are only offered in the spring semester.
7 Program electives may include additional 3000 level courses in biology, physics, engineering,...etc.

- 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.
- Principles of Physics 1 and 2 with the co-requisite labs are required for completion of the ACS Certified Track.
- The prerequisite for Principles of Physics 1 (PHYS 2211 Principles of Physics I) and its co-requisite lab (PHYS 2311 Principles of Physics I Lab) is Calculus 1 (MATH 1131 Calculus with Analytic Geometry I) with a grade of C 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.
- 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.
- The prerequisite for Physical Chemistry 1 (CHEM 4111 Physical Chemistry I) and its co-requisite lab (CHEM 4311 Physical Chemistry I Lab) are Physics 2 (PHYS 2212 Principles of Physics II and PHYS 2312 Principles of Physics II Lab).
- Physical Chemistry 1 & 2 lecture and lab may be offered at night, i.e. 4:30 - 5:45 for the lecture and 6:00 - 8:50 for lab.
- 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) and its co-requisite lab (CHEM 4375 Instrumental Methods of Chemical Analysis Lab) are 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.
- Biochemistry 1 and its co-requisite lab (CHEM 3141 Biochemistry I and CHEM 3345 Biochemistry Lab I) are only offered in the fall semester and Biochemistry 2 with its co-requisite lab (CHEM 3142 Biochemistry II and CHEM 3346 Biochemistry II Lab) are only offered in the spring semester.
- Supervised Undergraduate Research (CHEM 4899 Supervised Undergraduate Research) is offered as a 1, 2, or 3 credit hour course. The course may be repeated with a different topic up to 9 credits.
- Additional courses in astronomy, biology, chemistry, computer science, engineering, geology, or mathematics courses may be selected as program electives as approved by advisor and the department chair.