

Chemistry and Pre-Chemical Engineering – Associate of Science

The Associate of Science with an emphasis in Chemistry and Pre-Chemical Engineering at NCCC provides the general education courses normally taken in the first two years at a four-year college or university, with major in chemistry or chemical engineering. Study in college chemistry, calculus, and physics will prepare the student for the junior level at four-year universities. Furthermore, it will equip a student with the basic chemistry techniques and technology used in chemistry labs.

Prerequisites

The student will need to demonstrate proficiencies in reading, English, and mathematics based on the COMPASS assessment test, ACT or SAT scores, or by taking the recommended/required classes. Some of the courses in this curriculum have specific prerequisites.

General Education (GE) Courses

In order to graduate with a college degree, all students are required to take certain general education courses. These include English composition, speech, wellness, science, art and humanities, mathematics, computer systems, and social and behavioral science.

Program Core Courses

CHEM 125/126 College Chemistry I/Lab, CHEM 135/136 College Chemistry II/Lab, MATH 150 Analytic Geometry and Calculus I, MATH 155 Analytic Geometry and Calculus II, PHYS 104/140 Engineering Physics I/Lab, PHYS 105/145 Engineering Physics II/Lab.

Program Elective Courses

For biochemistry: BIOL 251/252 Biology I/Lab, BIOL 255/256 Biology II/Lab.

For chemical engineering: MATH 253 Analytic Geometry and Calculus III.

Program Outcomes

1. Demonstrate an understanding of chemical calculations and in solving stoichiometry problems.
2. Describe atomic structure, periodicity, chemical reactions, chemical bonds and name chemical compounds.
3. Define matter and demonstrate an understanding of the properties of solids, liquids, and gases in relation with energy.
4. Define and classify acids and bases and the different reactions they undergo.
5. Demonstrate an understanding in measuring; mechanics of motion and thermal properties of matter by application in problem solving.
6. Demonstrate an understanding of electricity, magnetism, and optics by application in problem solving.
7. Gather and record qualitative and quantitative data accurately, and master basic lab techniques such as the use of graphing calculators in mathematics and in physics.

Course Sequence

The listing that follows is a recommended sequence of courses for full-time students. The student should consult with an advisor for information specific to their academic situation.

Chemistry and Pre-Chemical Engineering Associate of Science Recommended Sequence of Courses

(Fall) Semester I		Cr Hrs
CHEM 125	College Chemistry I	3
CHEM 126	College Chemistry I lab	2
PSYC 100	First Year Seminar	1
ENGL 101	English Composition I	3
MATH 150	Analytic Geometry and Calculus I*	5
CSIS 100/130	Computer Concepts and Applications or Intro Computer Information Systems	3
Total		17

(Spring) Semester II

CHEM 135	College Chemistry II**	3
CHEM 136	College Chemistry II lab	2
MATH 155	Analytic Geometry and Calculus II	5
ENGL 289	English Composition II	3
PSYC 155	General Psychology	3
Total		16

(Fall) Semester III

PHYS 104	Engineering Physics I**	4
PHYS 140	Engineering Physics I Lab	1
COMM 207	Fundamentals of Speech	3
	Social/Behavioral Science Elective	3
	Arts/Humanities Elective	3
HPER 150	Lifetime Fitness	1
	Arts/Humanities Elective	3
Total		18

(Spring) Semester IV

PHYS 105	Engineering Physics II	4
PHYS 145	Engineering Physics II Lab	1
	Biological Science and Lab	5
	Social/Behavioral Science Elective	3
	Arts/Humanities Elective	3
Total		16

Total Program Credits **67**

*Assuming the student has passed the equivalent of College Algebra, if not, enroll in MATH 125 College Algebra and Trigonometry (5cr), or MATH 122 Plane Trigonometry (3cr) instead.
**The student could enroll in PHYS 100/130 Introductory College Physics I/Lab (5cr) instead. However, PHYS 104/140 Engineering Physics I/Lab (5cr) are strongly recommended.

For more information contact:

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