

Chemistry (CHEM)

CHEM 101 Basic Chemistry 3 Credits (3,0)

Elementary chemical theory; atomic theory; elements; compounds; mixtures; weight and volume calculations; basic descriptive chemistry. Includes a 1.5-hour lab session. Not for credit in Aerospace or Electrical Engineering. Note: Registration for lab section CHEM 101L required.

Corequisites: CHEM 101L

Course Offered at: Daytona Beach

CHEM 101L Basic Chemistry Laboratory 0 Credits (0,1.5)

Laboratory experiments related to Basic Chemistry (CHEM 101); atomic theory; elements; compounds; mixtures. One 1.5-hour lab session per week.

Course Offered at: Daytona Beach, Prescott

CHEM 110 General Chemistry I 3 Credits (3,0)

Fundamental principles of chemistry; nomenclature; stoichiometry; atomic structure; periodic relationships; chemical bonding; molecular geometry; gas properties; thermodynamics; solutions.

Daytona Beach Corequisites: MATH 111 or MATH 120 or MATH 140 or MATH 143 and CHEM 110L within 1 year

Prescott Corequisites: MATH 111 or MATH 120 or MATH 140 or MATH 143 and CHEM 110L within 1 year

Worldwide Corequisites: MATH 111 or MATH 120 or MATH 140 or MATH 143

Course Offered at: Daytona Beach, Prescott, Worldwide

CHEM 110L General Chemistry I Laboratory 1 Credit (0,1)

Laboratory experiments paralleling General Chemistry I (CHEM 110); chemical stoichiometry; states of matter; solutions.

Course Offered at: Daytona Beach, Prescott, Worldwide, Asia

CHEM 111 General Chemistry II 3 Credits (3,0)

Thermodynamics; acids and bases; reaction rates; electrochemistry; organic chemistry; synthetic materials.

Prerequisites: CHEM 110

Corequisites: CHEM 111L

Course Offered at: Daytona Beach, Prescott

CHEM 111L General Chemistry II Laboratory 1 Credit (0,3)

Laboratory experiments paralleling General Chemistry II (CHEM 111); kinetics; equilibrium; acids and bases; thermodynamics; electrochemistry.

Prerequisites: CHEM 110L

Course Offered at: Daytona Beach, Prescott

CHEM 113 General Chemistry for Engineering 3 Credits (3,0)

Basic principles of modern chemistry for engineering applications; reactivity; bonding; chemical calculations; intermolecular forces; kinetics; electron configuration; electrochemistry; thermodynamics.

Course Offered at: Prescott

CHEM 140 Chemistry for Engineers 4 Credits (4,0)

Chemical stoichiometry; states of matter; solutions; thermodynamics; reaction rates; equilibrium; oxidation-reduction; corrosion; organic compounds; polymers; engineering applications.

Prerequisites: CHEM 140L

Corequisites: CHEM 140 or CHEM 110

Course Offered at: Daytona Beach, Prescott

CHEM 140L Chemistry for Engineers Laboratory 1 Credit (0,1)

Laboratory experiments paralleling Chemistry for Engineers (CHEM 140); stoichiometry; states of matter; solutions; thermodynamics; reaction rates; equilibrium; polymers.

Corequisites: CHEM 140 or CHEM 110

Course Offered at: Daytona Beach

CHEM 199 Special Topics in Chemistry 1-6 Credit (1-6,0)

Individual, independent, or directed studies of selected topics in chemistry.

Course Offered at: Daytona Beach, Prescott, Worldwide

CHEM 210 Organic Chemistry I 3 Credits (3,0)

Chemistry of organic compounds; nomenclature; functional groups; chemical and physical properties; structure determination; synthesis; reaction mechanisms.

Prerequisites: CHEM 111

Corequisites: CHEM 210L

Course Offered at: Daytona Beach, Prescott

CHEM 210L Organic Chemistry I Laboratory 1 Credit (0,3)

Laboratory experiments related to Organic Chemistry I (CHEM 210); chemical synthesis; purification techniques; spectroscopy.

Prerequisites: CHEM 111 and CHEM 111L

Corequisites: CHEM 210

Course Offered at: Daytona Beach, Prescott

CHEM 211 Organic Chemistry II 3 Credits (3,0)

Advanced organic compounds; biological molecules; organic synthesis methods.

Prerequisites: CHEM 210

Corequisites: CHEM 211L

Course Offered at: Daytona Beach, Prescott

CHEM 211L Organic Chemistry II Laboratory 1 Credit (0,3)

Laboratory experiments related to Organic Chemistry II (CHEM 211); reaction rates; chemical synthesis; spectroscopy.

Prerequisites: CHEM 210 and CHEM 210L

Corequisites: CHEM 211

Course Offered at: Daytona Beach, Prescott

CHEM 299 Special Topics in Chemistry 1-6 Credit (1-6,0)

Individual, independent, or directed studies of selected topics in chemistry.

Course Offered at: Daytona Beach, Prescott

CHEM 304 Critical Reading and Scientific Communication 1 Credit (1,0)

Reading and analyzing primary research in biology and chemistry; critical evaluation of experimental design and data interpretation; explaining findings from biological and chemical research literature; effective presentation of research results; development of written and oral communication skills tailored to scientific audiences. Emphasizing clarity, precision, and engagement in scientific discourse.

Prerequisites: a grade of C or better in BIOL 120, CHEM 110 or CHEM 113

Course Offered at: Prescott

CHEM 310 Biochemistry 3 Credits (3,0)

Biological chemistry; structure and function of macromolecules; metabolic pathways; molecular genetics; gene expression.

Prerequisites: CHEM 210

Corequisites: CHEM 310L

Course Offered at: Daytona Beach, Prescott

CHEM 310L Biochemistry Laboratory 1 Credit (0,1)

Experiential laboratory; structure and function of macromolecules; metabolic pathways; molecular genetics; gene expression.

Prerequisites: CHEM 210L

Corequisites: CHEM 310

Course Offered at: Daytona Beach, Prescott

CHEM 314 Environmental Chemistry 3 Credits (3,0)

Chemistry of natural systems; element cycling; complex equilibria; oxidation-reduction; atmospheric chemistry; energy processes; toxic substances.

Prerequisites: CHEM 111

Course Offered at: Daytona Beach

CHEM 320 Quantitative Analytical Chemistry 3 Credits (3,0)

Chemistry of acids and bases, titrations, electrochemistry, and spectrophotometry.

Prerequisites: CHEM 111 and CHEM 111L

Corequisites: CHEM 320L

Course Offered at: Prescott

CHEM 320L Quantitative Analytical Chemistry Laboratory 1 Credit (0,3)

One three-hour laboratory session per week, with experiments related to the material of CHEM 320, including the chemistry of acids and bases, titrations, electrochemistry, and spectrophotometry.

Prerequisites: CHEM 111 and CHEM 111L

Course Offered at: Prescott

CHEM 340 Toxicology 3 Credits (3,0)

A comprehensive evaluation of toxicokinetics, forensic toxicology and analysis, and the environmental aspects of various classes of drugs, poisons, and pollutants. The disposition and effects of toxic agents in both micro- and large scale living systems will be considered.

Prerequisites: BIOL 120 and BIOL 121 and CHEM 210

Corequisites: CHEM 340L

Course Offered at: Prescott

CHEM 340L Toxicology Laboratory 1 Credit (0,3)

One three-hour laboratory session per week, with experiments related to the material of CHEM 340, including toxicokinetics, forensic toxicology and analysis, and environmental testing.

Prerequisites: BIOL 120 and BIOL 120L and BIOL 121 and BIOL 121L and CHEM 210 and CHEM 210L

Course Offered at: Prescott

CHEM 399 Special Topics in Chemistry 1-6 Credit (1-6,0)

Individual, independent, or directed studies of selected topics in chemistry.

Course Offered at: Daytona Beach, Prescott

CHEM 499 Special Topics in Chemistry 1-6 Credit (1-6,0)

Individual, independent or directed studies of selected topics in chemistry.

Course Offered at: Daytona Beach, Prescott