CARP 213  Engineered Structural Systems  
Units: 1.0  Hours: 6.0 Lecture and 30.0 Laboratory  
Transferable: No  
This course covers the design of heavy timber construction, lamination, dams, bridges and trusses. Construct, in proper sequence, a panel roof system having hinge connectors, steel caps, beam seats, and sawn lumber roof members. Construct a truss roof system. Tie the basic knots used in rigging. Direct a crane using university recognized hand signals.

CARP 214  Interior Systems  
Units: 1.0  Hours: 6.0 Lecture and 30.0 Laboratory  
Transferable: No  
This course is a comprehensive study of materials, work processes and the proper use of tools necessary to install layout and material application for metal framing, drywall, suspended ceilings, metal frames, doors, door hardware, and access floors.

CARP 215  Stair Building  
Units: 1.0  Hours: 6.0 Lecture and 30.0 Laboratory  
Transferable: No  
This course covers types, designs, nomenclature and Uniform Building Codes requirements for building stairs. Topics include mathematical calculations and layout procedures, constructing stairs, landings, newels and handrails.

CARP 216  Roof Framing  
Units: 1.0  Hours: 6.0 Lecture and 30.0 Laboratory  
Transferable: No  
This course covers roof framing, layout and construction. Topics include planning and building several styles of roofs using accepted terminology, technical information, construction materials and methods, and meeting accepted industry standards.

CARP 217  Introduction to Welding and Cutting  
Units: 1.0  Hours: 6.0 Lecture and 30.0 Laboratory  
Transferable: No  
This course covers welding methods, brazing, flame cutting, and shielded arc welding. Topics include thermo forming and thermo setting plastics applicable to the building construction industry. Perform basic welding tasks in a safe manner.

CARP 290  Occupational Work Experience / Carpenter  
Units: 1.0 TO 4.0  Hours: 5.0 TO 20.0 Laboratory  
Transferable: No  
Occupational work experience for students who have a job related to their major. A training plan is developed cooperatively between the employer, college and student. (P/NP grading) 75 hours per semester paid work = 1 unit. 60 hours non-paid (volunteer) work per semester = 1 unit. May be taken for a maximum total of 16 units. Minimum 2.00 GPA. REQUIRED: Declared vocational major.

CHEM 1B  General Chemistry  
Units: 5.0  Hours: 4.0 Lecture and 3.0 Laboratory  
Transferable: CSU, UC; CSU-GE:B1, B3, IGETC:5A, 5C; GAV-GE:B1, B3; CAN:CHEM4, CHEM SEQ A  
This is the second semester of a year-long general chemistry course designed as a continuation of Chemistry 1A. Topics include solutions, thermodynamics, chemical kinetics, the equilibria of acids and bases, solubility systems, complex ions, electrochemistry, the chemistry of metals and nonmetals, as well as nuclear chemistry. (C-ID CHEM 120S: Chem 1A + Chem 1B) PREREQUISITE: Chemistry 1A with a grade of C or better.

CHEM 12A  Organic Chemistry  
Units: 5.0  Hours: 3.0 Lecture and 6.0 Laboratory  
Transferable: CSU, UC; CSU-GE:B1, B3, IGETC:5A, 5C; GAV-GE:B1, B3  
This is the first semester of a year-long organic chemistry course designed for chemistry majors, pre-professional medical, biology, and science majors. Topics include nomenclature, stereochemistry, mechanisms, reactions and spectroscopic studies of organic compounds. Lecture and laboratory methods will focus on synthesis, isolation, purification, elucidation and identification of organic structures, as well as instrumental methods and data interpretation. (C-ID: CHEM 150) PREREQUISITE: Chemistry 1B

CHEM 12B  Organic Chemistry  
Units: 5.0  Hours: 3.0 Lecture and 6.0 Laboratory  
Transferable: CSU, UC; CSU-GE:B1, B3, IGETC:5A, 5C; GAV-GE:B1, B3  
This is the second semester of a year-long organic chemistry course designed as a continuation of Chemistry 12A. Topics include nomenclature, stereochemistry, mechanism, reactions, and spectroscopic studies of the various organic functional groups. Lecture and laboratory methods will focus on synthesis, isolation, purification, elucidation and identification of organic structures as well as instrumental methods and data interpretation. (C-ID: CHEM 160S) PREREQUISITE: Chemistry 12A

CHEM 30A  Elementary Chemistry  
Units: 4.0  Hours: 3.0 Lecture and 3.0 Laboratory  
Transferable: CSU, UC; CSU-GE:B1, B3, IGETC:5A, 5C; GAV-GE:B1, B3; CAN:CHEM6, CHEM SEQ B  
This is a first semester college chemistry course designed for majors preparing to take Chemistry 1A, nursing and allied health students, as well as general education. The course will cover the principles of chemistry including properties of matter, energy, atomic theory, the Periodic Table, stoichiometry, elements and compounds, the properties of bonding, molecular structure, chemical reactions, states of matter, acidity, solutions and gases, as well as an introduction to organic chemistry. ADVISORY: Mathematics 205; eligible for English 250 and English 260.

CHEM 30B  Elementary Organic and Biochemistry  
Units: 4.0  Hours: 3.0 Lecture and 3.0 Laboratory  
Transferable: CSU, UC; CSU-GE:B1, B3, IGETC:5A, 5C; GAV-GE:B1, B3; CAN:CHEM8, CHEM SEQ B  
This is the second semester of a year-long elementary chemistry course designed as a continuation of Chemistry 30A. It is designed for science majors, nursing and allied health students. The course will cover the principles of organic and biochemistry including hydrocarbons, alcohols, aldehydes and ketones, carboxylic acids, amines and amides, carbohydrates, lipids, proteins and their functions in physiological systems, as well as organic chemical reactions. PREREQUISITE: Chemistry 30A with a grade of C or better.

CHEM 312  Physical Chemistry  
Units: 4.0  Hours: 4.0 Lecture and 1.0 Laboratory  
Transferable: CSU, UC; CSU-GE:B1, B3, IGETC:5A, 5C; GAV-GE:B1, B3; CAN:CHEM9, CHEM SEQ B  
This is the second semester of a year-long physical chemistry course. Topics include the properties of solutions, colloid chemistry, chemical thermodynamics, the kinetics of chemical reactions, and a study of spectroscopy of gases. PREREQUISITE: Chemistry 311. }

Ceramics: see Art