CFT 187 Introduction to Carving (1,2,3,4)
2, 4, 6, or 8 hours lecture/laboratory
Note: May be taken 4 times; maximum of 4 completions in any combination of CFT 187, CFT 188, CFT 189
This beginning course in carving introduces students to the tools and techniques used in carving wood. The course includes specifics of available tools, their proper handling and maintenance, as well as discussions of layout and carving methods as applied to furniture and architectural millwork.

CFT 188 Intermediate Carving (1,2,3,4)
2, 4, 6, or 8 hours lecture/laboratory
Prerequisite: A minimum grade of 'C' in CFT 187
Note: May be taken 4 times; maximum of 4 completions in any combination of CFT 187, CFT 188, CFT 189
This course examines methods relating to both low and high relief carving, as well as incised lettering. More complex layout and carving techniques are undertaken. Concepts such as setting-in and blocking-out are introduced while modeling, introduced in the beginning course, is more fully developed.

CFT 189 Advanced Carving (1,2,3,4)
2, 4, 6, or 8 hours lecture/laboratory
Note: May be taken 4 times; maximum of 4 completions in any combination of CFT 187, CFT 188, CFT 189
Advanced carving is a topical study of specific carving applications as they relate to furniture or architectural millwork. Topics are largely gathered from period styles and may include ball and claw feet, Newport shells, and Philadelphia rococo, as well as contemporary interpretations, Art Nouveau, and maritime themes. See Class Schedule for specific period styles/themes to be emphasized.

CFT 190 Specialty and Manufactured Hardware (.5,1,2,3)
1, 2, 4, or 6 hours lecture/laboratory
Note: May be taken 4 times
Survey of traditional, contemporary, European, and Oriental market hardware found in the cabinet and furniture industries, including consumer applications. Exploration and application of various system solutions for given problem(s). Study and application of hinges, K D fasteners, fastening systems, joint systems, drawer guides, and runners.

CFT 195 Finishing Technology/Touch Up and Repair (2,3,4)
4, 6, or 8 hours lecture/laboratory
Prerequisite: A minimum grade of 'C' in CFT 100
Finishes as used in the wood-related fields. Study and use of penetrating, surface, epoxy, catalytic, and resin surface finishes. Preparation to include staining, filling, and glazing. Chemistry of lacquers, urethanes, oils, and enamels. Instruction and practice in the touch-up of existing finishes through use of French polishing, burn-in sticks, and dry aniline staining. Repair of fine furniture as necessary prior to finishing.

CFT 196 Special Problems in Cabinet and Furniture Technology (1,2,3,4,5,6)
3, 6, 9, 12, 15, or 18 hours laboratory
Prerequisite: A minimum grade of 'C' in CFT 100 or 105
Note: May be taken 4 times
A research course through individual contract concentrating in the area of Cabinet and Furniture Technology.

CFT 197 Cabinet and Furniture Technology Topics (.5-4)
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times
Topics in Cabinet and Furniture Technology. See class schedule for specific topic covered. Course title will designate subject covered.

CFT 198 Advanced Wood Finishing (2,3,4)
4, 6, or 8 hours lecture/laboratory
Prerequisite: A minimum grade of 'C' in CFT 195
Wood finishing history, processes, and application of multiple colors and complex finishes on furniture. Topics include media, solvents and tools used to apply media, faux finishes, gilding, coloring the finishing materials, turning broken or missing parts, and veneer repair.

CFT 295 Directed Study in Woodworking (1,2,3,4,5,6)
48, 96, 144, 192, 240, or 288 hours laboratory
Prerequisite: A minimum grade of 'C' in CFT 105
Note: May be taken 4 times
Independent study in furniture making, cabinet making, shop layout, design, operation, and maintenance for students who have demonstrated advanced skills and/or proficiencies in Cabinet and Furniture Technology subjects and have the initiative to work independently on projects or research outside the context of regularly scheduled classes. Registration requires prior approval of supervising instructor.

Chemistry (CHEM)

Contact the Chemistry Department for further information.
(760) 744-1150, ext. 2505
Office: NS-355B

Associate in Arts Degrees -
AA Degree requirements are listed in Section 6 (green pages).
• Chemistry

Certificates of Achievement -
Certificate of Achievement requirements are listed in Section 6 (green pages).
• Chemistry

PROGRAM OF STUDY

Chemistry

Provides the background to begin upper division course work and prepares the student for entry level jobs that require a knowledge of chemistry. The student is advised to check with the institution to which he/she wishes to transfer for additional courses, which may be required.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
CHEM 110	General Chemistry	3
CHEM 110L	General Chemistry Laboratory	2
CHEM 115	General Chemistry	3
CHEM 115L	General Chemistry Laboratory	2
CHEM 210	Analytical Chemistry	5
CHEM 220	Organic Chemistry	5
CHEM 221	Organic Chemistry	5
TOTAL UNITS		**25**

COURSE OFFERINGS

Courses numbered under 50 are non-degree courses.
Courses numbered under 100 are not intended for transfer credit.

CHEM 10 Chemistry Calculations (1)
1 hour lecture
Note: Pass/No Pass grading only
Non-degree Applicable
The basic calculation skills needed for successful performance in CHEM 100, 110, and 115. Areas such as significant figures, exponential numbers, and basic chemical problems are discussed. Emphasizes student practice of chemistry problems.

CHEM 100 Fundamentals of Chemistry (4)
3 hours lecture-3 hours laboratory
Prerequisite: One year of high school algebra
Transfer acceptability: CSU; UC – no credit if taken after CHEM 110
Introductory study of the principles and laboratory techniques of general chemistry. Laboratory must be taken concurrently with lecture.

CHEM 101 The World of Chemistry (3)
3 hours lecture
Transfer acceptability: CSU; UC – no credit if taken after CHEM 110; UC – CHEM 101 and 102 combined: maximum credit, one course

An introduction to chemistry for non science majors. Stresses a humanistic approach to chemistry and de-emphasizes mathematical problem solving. Includes chemical and physical discoveries and their impact on our standard of living, the formulation of chemical theories from chemical facts, and the use of chemical theories to make scientific and technological advances.

CHEM 102 Chemistry and Society (3)
3 hours lecture
Transfer acceptability: CSU; UC – no credit if taken after CHEM 110; UC – CHEM 101 and 102 combined: maximum credit, one course
Introductory course for non-science majors, to acquaint students with the language and tools of chemistry and to enable them to develop an appreciation for the role of chemistry in our environment and life's processes.

CHEM 104 General Organic and Biochemistry (5)
3 hours lecture-6 hours laboratory
Transfer acceptability: CSU; UC
This course will cover the basic principles of general chemistry, organic chemistry and biochemistry as needed to understand the biochemistry, physiology, and pharmacology of the human body. This course is intended mainly for students pursuing health professions.

CHEM 105 Fundamentals of Organic Chemistry (4)
3 hours lecture-3 hours laboratory
Prerequisite: A minimum grade of 'C' in CHEM 100, or CHEM 110 and 110L
Transfer acceptability: CSU; UC
An introduction to the study of organic chemistry with an emphasis on classification, reactions, and application to allied fields. Laboratory includes techniques of isolation, identification, and synthesis of organic compounds.

CHEM 109 Forensic Chemistry (3)
3 hours lecture
Prerequisite: A minimum grade of 'C' in MATH 50
Transfer acceptability: CSU
This course trains the student in the procedures of collecting and evaluating crime scene evidence that specifically relates to chemistry. Chemical and physical analysis techniques are used to substantiate any field observations with reliable data for administration of justice and further litigation.

CHEM 110 General Chemistry (3)
3 hours lecture
Prerequisite: A minimum grade of 'C' in CHEM 100 or high school chemistry with laboratory, and two years of high school algebra or MATH 60
Corequisite: CHEM 110L
Transfer acceptability: CSU; UC
Principles of, and calculations in, areas such as atomic structure, solutions, chemical bonding, chemical formulas and equations, gases, energy transformations accompanying chemical changes, and descriptive chemistry.

CHEM 110L General Chemistry Laboratory (2)
6 hours laboratory
Prerequisite: A minimum grade of 'C' in CHEM 110, or concurrent enrollment in CHEM 110
Transfer acceptability: CSU; UC
Qualitative and quantitative investigations designed to accompany CHEM 110.

CHEM 115 General Chemistry (3)
3 hours lecture
Prerequisite: A minimum grade of 'C' in CHEM 110 and 110L
Recommended preparation: Concurrent enrollment in CHEM 115L
Transfer acceptability: CSU; UC
Principles of, and calculations in, areas such as reaction spontaneity, energy changes accompanying chemical reactions, rates of reactions, chemical equilibrium, acids and bases, precipitation reactions, complex ions, oxidation and reduction, nuclear reactions, and descriptive chemistry.

CHEM 115L General Chemistry Laboratory (2)
6 hours laboratory
Prerequisite: A minimum grade of 'C' in CHEM 110 and 110L; A minimum grade of 'C' in CHEM 115, or current enrollment in CHEM 115
Transfer acceptability: CSU; UC
Qualitative and quantitative investigations designed to accompany CHEM 115.

CHEM 197 Chemistry Topics (.5-4)
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times
Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus.
Topics in Chemistry. See Class Schedule for specific topic offered. Course title will designate subject covered.

CHEM 205 Introductory Biochemistry (3)
3 hours lecture
Prerequisite: A minimum grade of 'C' in CHEM 105
Transfer acceptability: CSU; UC
Fundamental principles of the chemistry of living systems, including structure and function of proteins, nucleic acids, carbohydrates, and lipids. Emphasis on metabolism, energy storage and utilization.

CHEM 205L Introductory Biochemistry Laboratory (1)
3 hours laboratory
Corequisite: CHEM 205
Note: May not be taken for Pass/No Pass grading
Transfer acceptability: CSU; UC
Lab experiments designed to accompany Chemistry 205 lecture.

CHEM 210 Analytical Chemistry (5)
3 hours lecture-6 hours laboratory
Prerequisite: A minimum grade of 'C' in CHEM 115 and 115L
Transfer acceptability: CSU; UC
Principles, calculations, and applications of volumetric, gravimetric, and instrumental analysis. Practice in standardizing reagents and determining the composition of samples of various materials.

CHEM 220 Organic Chemistry (5)
3 hours lecture-6 hours laboratory
Prerequisite: A minimum grade of 'C' in CHEM 115 and CHEM 115L
Transfer acceptability: CSU; UC
Integrated treatment of organic chemistry including electronic and orbital theory with applications to carbon bonding, stereo chemistry, resonance theory, and reaction mechanisms of both aliphatic and aromatic compounds. Strong emphasis on organic nomenclature, reactions, preparations, and synthesis of organic compounds. Laboratory: Techniques and theories involved in organic reactions and preparations, qualitative organic analysis, and instrumental methods.

CHEM 221 Organic Chemistry (5)
3 hours lecture-6 hours laboratory
Prerequisite: A minimum grade of 'C' in CHEM 220
Transfer acceptability: CSU; UC
Continuation of the integrated treatment of organic chemistry including electronic and orbital theory with applications to carbon bonding, stereo chemistry, resonance theory, and reaction mechanisms of both aliphatic and aromatic compounds. Strong emphasis on organic nomenclature, reactions, preparations, and synthesis of organic compounds. Laboratory: techniques and theories involved in organic reactions and preparations, qualitative organic analysis, and instrumental methods.

CHEM 295 Directed Study in Chemistry (1,2,3)
3, 6, or 9 hours laboratory
Prerequisite: Approval of project or research by department chairperson
Note: May be taken 4 times for a maximum of 6 units
Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus.
Independent study for students who have demonstrated skills and/or proficiencies in chemistry subjects and have the initiative to work independently on projects or research outside the context of regularly scheduled classes. Students will work under the personal supervision of an instructor.