CHEM 31. Laboratory in Medical Chemistry (1)
Lec-3 CR/NCR avail.
Prereq.: CHEM 30 (concur.)
Experiments covering selected concepts of inorganic and organic chemistry, biochemistry, and physics as they apply to the chemistry and physics of the human body. CSU

CHEM 32. Introduction to Medical Chemistry (4)
Lec-3, lab-3 CR/NCR avail.
Open to all students. No previous chemistry or physics required. Students who have passed CHEM 30 and 31 may not receive credit in CHEM 32. Satisfies the requirements of nursing and related majors that require one semester of chemistry. Also satisfies the recommended prerequisite for PHYS 12 and M B 12. Students taking a major that requires two semesters of chemistry should enroll in the CHEM 50, 51, 52, 53 sequence. Students preparing to enroll in CHEM 101A or 103A should enroll in CHEM 40.
Basic concepts of inorganic chemistry, biochemistry, and physics as they apply to the chemistry and physics of the human body. CSU
CHEM 30-31 = CHEM 32

CHEM 40. Introduction to Chemical Principles (4)
Lec-3, conf-1, lab-3
Prereq.: HS algebra or MATH 840 or placement into MATH 860 or higher
Advise: Completion of or concurrent enrollment in CHEM 17
Students may enroll in this course to remove a high-school deficiency in chemistry. Designed to prepare the beginning student as well as to strengthen the re-entry student for chemistry 101A or 103A. Satisfies prerequisite for PHYS 12 and M B 12, although CHEM 30 and 31 are recommended.
Students who take CHEM 40 will not receive credit if they have completed CHEM 101A or 103A within the previous three years.
Students who plan to enroll in CHEM 101A or 103A are advised to take MATH 860.
An introductory study of the fundamental laws and concepts of classical and modern chemistry, including dimensional analysis, nomenclature, stoichiometry, gases, solutions and atomic and molecular structures. CSU/UC

CHEM 41. Audio-Tutorial Introduction to Chemistry (1)
Conf-1 CR/NCR only
Advise: suppl. to CHEM 40 (concur.)
Self-paced introduction to basic principles of chemistry, using audio cassettes and a coordinated workbook. CSU

CHEM 30. Introduction to Medical Chemistry (3)
Lec-3 CR/NCR avail.
Open to all students. No previous chemistry or physics required. Satisfies the requirements of Health Career majors that require one semester of chemistry. Also satisfies the recommended prerequisite for PHYS 12 and M B 12. Students whose programs require a chemistry lab should enroll in CHEM 31 concurrently. Students taking a major that requires two semesters of chemistry should enroll in the CHEM 50, 51, 52, 53 sequence. Students preparing to enroll in CHEM 101A or 103A should enroll in CHEM 40.
An introductory course in the basic concepts of inorganic and organic chemistry, biochemistry, and physics as they apply to the chemistry and physics of the human body. CSU

CHEM 17. Problem Solving Methods (3)
Lec-3
Prereq.: Completion of or concurrent enrollment in MATH 840
The normal progression is from CHEM 17 to CHEM 40. Students who take CHEM 17 will not receive credit if they have completed CHEM 101A, 103A, or 40.
Problem solving, with emphasis on the how and why of solving problems. Useful for all areas where quantitative reasoning is needed. Designed for the student who knows how to perform various mathematical operations but who has difficulty in setting up problems for solution. Most problems assigned in this course have some basis in commonly known or easily learned aspects of the physical sciences. CSU

CHEM D. Chemistry Calculations (1)
Conf-1,5 CR/NCR only
Recommended as a supplement to be taken concurrently with CHEM 103A for students who need additional help
Illustration and discussion of problem-solving methods for calculations in chemistry.

CHEM C. Introduction to Calculation in Chemistry (1)
Disc/quiz-1,5 CR/NCR only
Recommended as a supplement to be taken concurrently with CHEM 101A for students who need additional help
Illustration and discussion of problem-solving methods for calculations in chemistry.

CHEM, NON-DEGREE APPLICABLE COURSES:

CREDIT, DEGREE APPLICABLE COURSES:

CHEM 30. Introduction to Medical Chemistry (3)
Lec-3 CR/NCR avail.
Open to all students. No previous chemistry or physics required. Satisfies the requirements of Health Career majors that require one semester of chemistry. Also satisfies the recommended prerequisite for PHYS 12 and M B 12. Students whose programs require a chemistry lab should enroll in CHEM 31 concurrently. Students taking a major that requires two semesters of chemistry should enroll in the CHEM 50, 51, 52, 53 sequence. Students preparing to enroll in CHEM 101A or 103A should enroll in CHEM 40.
An introductory course in the basic concepts of inorganic and organic chemistry, biochemistry, and physics as they apply to the chemistry and physics of the human body. CSU

CHEM 807. Work Experience (3)
Work-15 CR/NCR only
Prereq.: Arrangement with the instructor and the department work experience coordinator. Students must enroll for at least four semester units in addition to this course. Students may not enroll in this course if they are enrolled in another work experience course at the same time.
Repeat: max. 5 units
Weekly on-campus, non-paid work experience.
CHEM 50. Chemistry for Biotechnology and Health Careers (3) fa
Lec-3, field trips
Advis: One year HS algebra or MATH 840. One year of HS chem. with lab; or CHEM 30 and 31; or CHEM 40. One year of HS geometry
CHEM 50 is the first of two semesters of chemistry designed to cover topics ranging from general chemistry to biochemistry. CHEM 50-53 satisfies the chemistry requirements of the two-year Biotechnology Certificate Program designed to prepare students to enter the local work force in the biotechnology industry. Students in Health Career majors that require a full year of chemistry (e.g., some nursing programs, dental hygiene) should also enroll in the CHEM 50, 51, 52, 53 sequence.
Chemical foundations for biotechnology and health careers. Matter and measurements; periodic table and atomic structure; chemical bonding; nuclear chemistry; chemical reactions; properties of gases, solids and liquids; solutions; and acid-base chemistry. CSU

CHEM 51. Laboratory for Biotechnology and Health Careers (2) fa
Lab-6, field trips
Advis: CHEM 101B or 103B; or CHEM 50 (concur.)
CHEM 51 is a laboratory class designed to accompany CHEM 50.
Laboratory techniques for biotechnology and health careers. Quantitative methods, separation techniques, spectroscopic techniques, chromatography, solution preparation, and pH measurement. CSU

CHEM 52. Chemistry for Biotechnology and Health Careers (3) sp
Lec-3, field trips
Prereq.: CHEM 50, 51; or CHEM 30, 31
Chemical foundations for biotechnology and health careers. Introduction to organic chemistry: structures and reactivity of typical organic functional groups, and biochemistry: carbohydrate, lipid and protein chemistry; metabolic pathways; nucleic acids, gene expression, and genetic engineering. CSU

CHEM 53. Laboratory for Biotechnology and Health Careers (2) sp
Lab-6, field trips
Prereq.: CHEM 50, 51; or CHEM 30, 31
CHEM 53 is a laboratory class designed to accompany CHEM 52.
Current organic and biochemical laboratory techniques for biotechnology and health careers. CSU

CHEM 55. Ethical Issues in Science (3) fa
Lec-3, field trips
Advis: ENGL 96 or ESL 82
Principles of ethics and their applications in scientific work; case studies drawn from areas of current concern in biotechnology, genetic engineering, and other scientific fields. CSU
CHEM 55 = BIO 55

CHEM 80-81-82-83-84. Selected Topics in Chemistry (0.5-3)
Lec-0.5, 1, 2, 3; lab-3; field trips
Repeat: if no subject repeat
Investigation in depth of selected topics in chemistry; such as: considering current issues and innovations, expanding subjects covered briefly in introductory courses, exploring topics not studied in other classes in chemistry, or instruments newly available. CSU

CHEM 85. Seminar in Chemistry (1)
Lec-1.5
Repeat: max. 4 units
Discussions on current research in chemistry, biochemistry, and related fields. Presentations on career opportunities for students studying chemistry, as well as on study strategies for chemistry courses. CSU

CHEM 101A-101B. General College Chemistry (5-5)
101A: Lec-4, lab-6
101B: Lec-3 lab-6
Prereq.: CHEM 101A: Two yrs. HS algebra or MATH 860 or placement into any course beyond MATH 860; and one yr. HS Chemistry or CHEM 40. A student who has not had recent experience in math or chemistry is strongly advised to take CHEM 40 before enrolling in CHEM 101A.
CHEM 101B: CHEM 101A or 103A
Students who are majoring in engineering, except chemical engineering, should enroll in CHEM 103A-103B.
CHEM 101A-101B are the standard college courses required in many curricula. CHEM 101A and 101B may be substituted for CHEM 103A and 103B.
Stoichiometry, ideal gases, equilibrium (solubility, acids, and bases), thermochemistry, nuclear chemistry, electrical cells, imperfect gases, atomic structure, chemical bonding, periodic table, descriptive chemistry, transition metals, kinetics, introductory organic chemistry, and qualitative analysis. 101A: CSU/UC/CAN: CHEM 2; 101B: CSU/UC/CAN: CHEM 4; CHEM 101A+B: CHEM SEQ A

CHEM 103A-103B. General Chemistry (4-4)
Lec-4, lab-3
Prereq.: CHEM 103A: 2 yrs. HS algebra or MATH 860 or placement into any course beyond MATH 860; and one yr. HS chemistry or CHEM 40. A student who has not had recent experience in math or chemistry is advised to take CHEM 40 before enrolling in CHEM 103A.
CHEM 103B: CHEM 103A or CHEM 101A
Designed for students majoring in all engineering programs except chemical engineering. 103A: CSU/UC; 103B: CSU/UC

CHEM 106. General Chemistry (5)
Lec-4, lab-6
Prereq.: HS algebra or MATH 840, or (1) a satisfactory score in the City College placement examination and (2) one year of HS chemistry.
Students who have not had recent experience in mathematics or in chemistry are advised to take CHEM 40 before enrolling in CHEM 106.
A one-semester course in general chemistry for students whose majors do not require 10 units of college chemistry. A presentation of selected major topics covered in CHEM 101A and CHEM 101B. CSU/UC
CHEM 107. Computers in Chemistry (2) sp
Lec-1, lab-3
Prereq.: CHEM 101A or 103A (concur.)
Microsoft EXCEL will be used as a tool for problem solving, calculations, graphing and visual presentation of chemical data. Students will also use mathematical utilities programs in chemical settings. In addition, word processing programs will be introduced for writing laboratory reports. All projects utilize the principles taught in general chemistry. No prior computer experience is required. CSU/UC

CHEM 110. Chemistry for Nonscientists (3)
Lec-3 CR/NCR avail.
Advis: ENGL 92, or ENGL 94, or ESL 82, or eligible for ENGL 96 or ENGL 1A
Open to all students except those who have completed CHEM 101A or more advanced courses.
A non-mathematical presentation of chemical principles with emphasis on their relevance to modern life. Designed for non-science majors. CSU/UC

CHEM 110L. Laboratory for Nonscientists (1)
Lec-1, lab-2 CR/NCR avail.
Prereq.: CHEM 110 (concur.)
Laboratory practice in modern and commonly used chemical techniques. CSU/UC

CHEM 205. Quantitative Analysis (4)
Lec-2, lab-6
Prereq.: CHEM 101B
Recommended that CHEM 205 be taken soon after CHEM 101B.
The fundamentals of quantitative analysis. Solubility, acid-base, redox, complex formation equilibria and their applications in volumetric and gravimetric analysis. Selected topics in instrumental analysis. CSU/UC/CAN: CHEM 12

CHEM 208A-208B. Organic Chemistry (4-4)
Lec-3, lab-3
Prereq.: CHEM 208A: CHEM 101A, or 103A;
CHEM 208B: CHEM 208A or 212A
A one-year course in organic chemistry for nonchemistry majors. CSU/UC

CHEM 212A-212B. Organic Chemistry (5-5)
Lec-4, lab-6
Prereq.: CHEM 212A: CHEM 101B;
CHEM 212B: CHEM 212A or CHEM 208A
Students who have completed CHEM 208A may not receive credit in CHEM 212A.
A one-year course in organic chemistry for students who major in chemistry, biochemistry or other sciences. CSU/UC

Child Development and Family Studies
Announcement of Curricula

Child Development
Admission. Enrollment is open to all students interested in working with children in Early Childhood Programs.

Associate of Arts Degree and Award of Achievement.
The Child Development Program is designed so that students may satisfy the requirements for graduation from the College. Students who satisfy these requirements and complete the required course with an average final grade of C (2.00 grade point average) or higher receive the Award of Achievement in Child Development.

For students interested in the Associate of Arts Degree and Award of Achievement (in Child Development) from City College, the requirements are as follows: 12 units of the CORE courses (with a grade of C or better):

- CDEV 65 Introduction to Early Childhood Programs
- CDEV 67 Child, Family and Community
- CDEV 53 Child Growth & Development
- CDEV 66 Introduction to EC Curriculum

18 units selected from any courses offered by the Child Development Program.
Units of Health 14, CPR, ADV. First Aid Emergency Care.

GENERAL EDUCATION REQUIREMENTS for graduation from City College as listed in this catalog.

The Degree curriculum requires a total of 60 semester units. After completing 30 units from the Child Development Department AND the 19-21 units of General Education Requirements, a student may enroll in any course (as elective) to total the 60 units for an A.A. Degree.

Child Development Certificate: Administration
A "Certificate of Completion" will be granted upon successful completion of the required number of units in course work. A grade of "C" or better is required in all certificate courses.

<table>
<thead>
<tr>
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<tr>
<td>CDEV 67 The Child, Family, and Community</td>
<td>3</td>
</tr>
<tr>
<td>CDEV Elective Courses</td>
<td>6</td>
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</tbody>
</table>

Area of Specialization: Administration
CDEV 90 Early Childhood Admin I | 3 |
CDEV 91 Early Childhood Admin II | 3 |

Child Development Certificate: General
A "Certificate of Completion" will be granted upon successful completion of the required number of units in course work. A grade "C" or better is required in all certificate courses. CDEV 72, Supervised Field Experience, is strongly recommended for those students planning to work in early childhood classroom settings with children.

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Child Development Certificate: Infant/Toddler Care

A “Certificate of Completion” will be granted upon successful completion of the required number of units in course work. A grade of “C” or better is required in all certificate courses.

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Area of Specialization: Infant/Toddler Care

CDEV 61 Infant/Toddler Growth and Develop ............ 3
CDEV 62 Infant/Toddler Curr ......................... 3

Child Development Certificate: School-Age Care

A “Certificate of Completion” will be granted upon successful completion of the required number of units in course work. A grade “C” or better is required in all certificate courses.

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</table>

Area of Specialization: School-Age Care

CDEV 95 School-Age Curr ................................ 3
CDEV 97 School-Age Child Growth and Develop ....... 3

Child Development Certificate: Violence Intervention in Early Childhood

A “Certificate of Completion” will be granted upon successful completion of the required number of units in course work. A grade of “C” or better is required in all certificate courses.

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<tr>
<td>CDEV 100 Violence and Its Impact on Children</td>
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</tbody>
</table>

Area of Specialization: Violence Intervention

CDEV 101 Violence Intervention Techniques .......... 3
CDEV 102 Practicum and Fieldwork ................... 3

Child Development Announcement of Courses

CREDIT, DEGREE APPLICABLE COURSES:

CDEV 41-42-43. Selected Topics in Child Development (1-2-3)
Lec-1, 2, 3; field trips CR/NCR avail.
The content of these courses varies. Students may re-enroll for additional credit if they do not repeat the same topic.
Investigation in depth of selected topics in Child Development. CSU

CDEV 41A. The High/Scope Curriculum.
CDEV 41B. The Mentor Teacher Seminar.
CDEV 41C. The Mentor Director Seminar.
CDEV 41D. The Child Development Permit and Professional Growth Advising.
CDEV 41E. Starting a Child Care Center in San Francisco.
CDEV 41F. Serving Children with Special Needs in Family Child Care.
CDEV 41G. Communicating with Parents and Guardians in Family Child Care.
CDEV 41H. Environments in Family Child Care.
CDEV 41I. Advanced Business Practices in Family Child Care.
CDEV 41J. Infant/Toddler Development in Family Child Care.
CDEV 41K. Infant/Toddler Curriculum in Family Child Care.

CDEV 53. Child Growth and Development (3)
Lec-3
Emphasis on human growth and development during infancy, early childhood, and adolescence. Developmental characteristics and individual differences; interrelationships of physical, emotional, intellectual, and social growth; personality development; signs of physical or emotional disturbances; records of children's growth and development. CSU

CDEV 61. Infant/Toddler Growth and Development (3)
Lec-3
Introduction for student/caregiver to developmental patterns from prenatal to toddler. Emphasis on the changes taking place during each developmental stage so that the teacher/caregiver will enhance his/her skills in caring for young children. CSU

CDEV 62. Infant/Toddler Care in Group Settings (3)
Lec-3
Theory and practice of the care and education of the very young child for perspective and practicing teachers and caregivers. Emphasis on the importance of the early years and how infants/toddlers learn. Presentation of quality care for infants/toddlers in terms of a developmental/educational curriculum and caregiver characteristics and techniques that enhance growth and development for the very young. CSU
CDEV 64. Introduction to Stress and Coping in Early Childhood and Elementary School Programs (3)
Lec-3

CDEV 65. Orientation to Early Childhood Programs (3)
Lec-3
An orientation to methods and philosophy of various early-childhood programs such as Montessori, private nursery schools, cooperative nursery schools, childcare programs and Head-Start programs. CSU

CDEV 66. Introduction to Early Childhood Curriculum (3)
Lec-3
The role of the teacher in the early childhood program. Emphasis on ways in which the teacher can provide appropriate play activities and creative learning experiences for children. CSU

CDEV 67. The Child, the Family, and the Community (3)
Lec-3
Patterns of family living and the roles and interaction of family members; social and economic factors affecting family life; home-school relationships; and community resources for children. CSU

CDEV 68. Interactions with Children (3)
Lec-3
Elements of children’s interactions and their relationships with adults and other children; dynamics of social interaction in the context of child growth and development; motivation and management of social behavior of young children. Dynamics in working with adults in child care setting. Emphasis on the child in urban settings. Overview of current trends in infant and day care. CSU

CDEV 70. Family Child Care (1)
Lec-1
Overview of the operation and development of a family child care home business. Information on California licensing regulations, operational procedures, and marketing efforts. CSU

CDEV 72. Supervised Field Experience in Early Childhood (3)
Lec-1, lab-6
Supervised work experience in group programs for young children. Observation and evaluation of young children, planning group activities and the role of adults in ECE programs. Fulfills the experience requirement for Child Development Permits. CSU

CDEV 73. Observing Young Children (3)
Lec-3
Training and practice in observational techniques and analysis; using observational data for appropriate curriculum development. CSU

CDEV 90. Early Childhood Education Administration I (3)
Lec-3
Emphasis on the business aspects of early childhood education programs. Setting up a childcare program; legal requirements for child care settings; laws relating to early childhood education; facets of business management. CSU

CDEV 91. Early Childhood Education Administration II (3)
Lec-3
Emphasis on the human relations as a necessary part in the administration of early childhood education programs. Staffing; parent involvement; communication guides for director-teacher; teacher-teacher, and teacher-parent relationships. CSU

CDEV 92. Health, Safety, and Nutrition in Early Childhood Programs (3)
Lec-3
Exploration of essential aspects and concerns of health, safety, and nutrition for children in early childhood programs. Examination of the relationship of preventive health care, safety measures, and proper nutrition to optimal development and education. Focus on how to provide high quality, secure environments, health/safety educational experiences and nutritious meals. Knowledge of basic management of accidental injuries and illnesses. CSU

CDEV 93. Cultural Diversity in Early Childhood Education (3)
Lec-3
Addresses the nature of cultural diversity in the United States and its implication for developing early childhood curriculum and for teaching young children. The course focuses on the attitudes of adults who interact with young children, institutional racism and development of a multicultural curriculum. CSU

CDEV 94. Literacy Development in Early Childhood (3)
Lec-3
An integrated approach to emerging language and literacy in the early years based on the needs and interests of the children. Emphasis on how teachers can support whole language learning and literacy development with consideration of the child’s home language and culture. CSU

CDEV 95. School-Age Child Care Curriculum (3)
Lec-3
Exploration of understanding child development and family concerns that are essential in planning a developmentally appropriate school-age child care program. Emphasis will be upon: relating to children and parents, age appropriate activities, positive guidance, and planning the environment. CSU
CDEV 96. Understanding Children with Difficult Behaviors in Early Childhood Programs (3)
Lec-3
Causes of difficult behavior in young children enrolled in group settings. Emphasis on recent research in brain development, neuropsychology and nutrition. Necessary changes in attitudes and responses of the involved adults. CSU

CDEV 97. School-Age Child: Growth and Development (3)
Lec-3
Introduction to human growth and physical, cognitive, language, and social development of issues affecting the lives of school-age children in contemporary society will be explored. CSU

CDEV 98. Sensory-Motor Development and Activities in Early Childhood Programs (3)
Lec-3
Prereq.: CDEV 53 (concur.)
Introduction to sensory-motor development in young children (birth - age 8) with a focus on large and small motor skills; Emphasis on understanding the critical factors that promote sensory-motor processing and interaction. Includes activities that enhance the role of the Early Childhood educator. CSU

CDEV 100. Violence and Its Impact on Children and Their Families (3)
Lec-3

CDEV 101. Introduction to Violence Intervention for Children and Their Families (3)
Lec-3
Overview of violence prevention strategies that are appropriate for early childhood programs. Building on skills developed in CDEV 100, this course focuses on early childhood teachers knowledge and skills to respond to the needs of children and families who experience stress and chronic violence. CSU

CDEV 102. Practicum and Fieldwork in Violence Intervention for Children (3)
Lec-2, lab-12 (9 wks)
Prereq.: CDEV 100 and 101
Application of skills learned in CDEV 100 and 101. Students work with young children impacted by violence. Developing basic observation, communication, and intervention skills appropriate for early childhood settings. CSU

CDEV 105. Supervising Adults in Early Childhood Programs (2)
Lec-3 (12 wks)
Prereq.: CDEV 90 or 91
Methods and principles of supervising adults in early childhood classrooms. Emphasis on the role of the experienced teacher who functions as the supervisor to center staff. Explores the head teacher's relationship to new teachers while simultaneously addressing the needs of children, parents and other staff. CSU

ESL 51A. ESL for Child Development (3)
Lec-3
CR/NCR avail.
Prereq.: Placement in ESL 52 and 54 or completion of ESL 42 and 44; may be taken concurrently with either CDEV 65 or 66, or alone
Repeat: max. 9 units
English as a second language support for Child Development (CDEV) 65 and 66 for limited English speakers. Reading strategies to successfully manage CDEV course load; writing strategies to successfully complete CDEV class reports and tests. Vocabulary building in child development terminology. Instructor will conduct periodic conferences with CDEV instructors on student progress and achievement. CSU

Family Studies
CREDIT, DEGREE APPLICABLE COURSES:

CDEV 151. Introduction to Foster Parenting (2)
Lec-2
The role of the Foster Parent. Emphasis on human development from birth through adolescence, communication skills, sociological/psychological fostering issues and cultural/community resources. Elements on ways in which the foster parent can nurture the foster child. CSU

CDEV 152. Positive Parenting (2)
Lec-2
Basic knowledge of parent and child growth and development. Nurturing approaches to utilizing positive stress management techniques in parenting and living. Geared for parents whose children are presently in out-of-home care or in danger of being placed in out-of-home care. CSU

CDEV 153. Training Older Adults for Work in Child Care. (3)
Lec-3
Preparation of older adults for work in child care. Discussion of issues of child development, health and safety, appropriate play environments, guidance techniques, and job preparation. Concurrent work experience. CSU

CDEV 155. Advanced Positive Parenting (3)
Lec-3
An in-depth analysis of positive parenting knowledge, skills and behaviors, as well as a careful examination of the societal pressures faced by families and corresponding support services. Developed for parents who have reunited their families (after legal and social intervention). CSU

NONCREDIT COURSES:

Infancy and Early Childhood
CDEV 8002. Parent and Infancy (45 hrs)
Informal lecture and discussion on infant development during the first seven months of life and issues of concern to new parents. Covers characteristics of normal development, daily routines and feeding practices, and impact of infant on family.
CDEV 8003. Infant Development
Informal discussions on the growth and development of infants 8-14 months of age are held in an enriched play environment. Topics covered include physical, emotional, social and cognitive growth, influence of environment on development, feeding concerns, and infant's impact on family.

CDEV 8100. Child Observation (54 hrs)
An exploration of child growth and development through observation and interaction with pre-school children; child rearing practices; effective parenting; positive decision-making in family life; utilization of community resources. Laboratory setting.

CDEV 8101. State Preschool Program
Presents child growth and development and teaching techniques utilized in the classroom and home. Provides a preschool learning environment for children, educational opportunities for income eligible parents, and supportive services for families. One hour parenting class a week. (Parent attends 4-16 hours)

CDEV 8104. Parent Participating Class
An exploration of early childhood development with an emphasis on parent/child relationships, community resources and parent/child communication. Discussion of the developmental needs of children 2-5 years. Emphasis on participating with your child and with other preschoolers in a parent participation nursery school. (Parent attends 5-17 hours)

CDEV 8105. The School Age Child (20 hrs)
General principles of development of elementary school age children. Topics include expectations and discipline, aggression, fears, self-esteem, cultural and economic differences, value clarification and sexuality.

CDEV 8107. School Age Child: Bilingual/Bicultural (10hrs)
Explores the development of school age children in bilingual families. Topics include expectations and effective discipline; self-esteem; cultural differences; fears and aggression in school-age children. Class will be taught bilingually as needed.

CDEV 8110. School-Age Child In Day Care (54 hrs)
Growth and development of the school-age child with emphasis on the child in the day care setting.

CDEV 8111. Understanding Your Child
Designed to improve parents' understanding of the problems of child development and behavior. Includes topics such as discipline, communication, and school problems. Problem solving techniques specific to individual student's needs.

CDEV 8112. Preschool Child In Day Care (54 hrs)
A study of the growth and development of the pre-school child with emphasis on the child in the day care setting. (3-5 years)

CDEV 8117. Current Issues in Child Care
Classes designed for parents and guardians of children enrolled in child care programs. Each class focuses on a specific aspect of child care affecting parents/guardians of preschool and school-age children. Topics include the relationship of the child care program to the family and how child care relates to the needs of children.

Parenting
CDEV 8202. Foster Parenting (18 hrs)
The role of the foster parent. Emphasis on human development from birth through adolescence. Topics include separation and grieving; drug and sexual education for adolescents; the role of foster parents and biological parents; community resources including the agency and placement worker.

CDEV 8206. Parenting in the Business Community (54 hrs)
General principles of human development, birth through adolescence. Emphasis on problems of working and/or single parents, family dynamics, and community resources for child care. (Classes may be made available on-site at large businesses).

CDEV 8219. Parenting For Young Mothers (54 hrs)
Current information and research on experiencing parenthood and adulthood simultaneously. Supporting and enhancing the parents' self-esteem and awareness of their child's growth and development will be the core focus.

Chinese
Announcement of Courses

Students of beginning Mandarin are directed to consider CHIN 1, 1A, 12A, 14A, 16.

CREDIT, DEGREE APPLICABLE COURSES:

CHIN 1. Elementary Chinese (5)
Lec-5, lab-2
Advis: Completion of ENGL 94 or ESL 82 or completion of any City College or university foreign language course
Beginner's course. Grammar, composition, and reading. Practice in speaking and understanding Mandarin. CSU/UC

CHIN 1A-1B. Elementary Chinese (3-3)
Lec-3, lab-2
Advis: CHIN 1A: Completion of ENGL 94 or ESL 82 or completion of any City College or university foreign language course
Prereq: CHIN 1B: CHIN 1A
Beginner's course. (Especially recommended for students starting the study of Chinese for the first time.)
Grammar, composition, and reading. Practice in speaking and understanding Mandarin. CSU/UC
CHIN 1A-1B = CHIN 1
CHIN 2. Continuation of Elementary Chinese (5)  
Lec-5, lab-2  
Prereq.: CHIN 1 or 1B or equivalent  
Second semester course. Continuation of the study of grammar, composition, and reading. Practice in speaking and understanding Mandarin. CSU/UC

CHIN 2A-2B. Continuation of Elementary Chinese (3-3)  
Lec-3, lab-2  
Prereq.: CHIN 2A: CHIN 1 or 1B or equivalent  
CHIN 2B: CHIN 2A or equivalent  
Continuation of the study of grammar, composition, reading, and practice in speaking and understanding Mandarin. CSU/UC  
CHIN 2A-2B = CHIN 2

CHIN 3. Intermediate Chinese (5)  
Lec-5, lab-1  
Prereq.: CHIN 2 or 2B or equivalent  
Third semester course. Grammar, composition and reading. Practice in speaking and understanding Mandarin Chinese. Understanding of Chinese culture. CSU/UC

CHIN 3A-3B. Intermediate Chinese (3-3)  
Lec-3, lab-1  
Prereq.: CHIN 3A: CHIN 2 or 2B  
CHIN 3B: CHIN 3A or its equivalent  
Grammar, composition and reading. Practice in speaking and understanding Mandarin Chinese. Understanding of Chinese culture. CSU/UC  
CHIN 3A-3B = CHIN 3

CHIN 4. Continuation of Intermediate Chinese (5)  
Lec-5, lab-1  
Prereq.: CHIN 3 or its equivalent  
Fourth semester course. Grammar, composition and reading. Practice in speaking and understanding Mandarin. CSU/UC

CHIN 4A-4B. Continuation of Intermediate Chinese (3-3)  
Lec-3, lab-1  
Prereq.: CHIN 3 or 3B  
CHIN 4B: CHIN 4A or its equivalent  
Grammar, composition and reading. Practice in speaking and understanding Mandarin. CSU/UC  
CHIN 4A-4B = CHIN 4

CHIN 10A. Beginning Conversational Cantonese (3)  
Lec-3, lab-2  
Prereq.: CHIN 10A  
Not open to native speakers of Cantonese.  
Second semester course. Continuation of extensive oral training in Cantonese. Emphasis on practical vocabulary and idiom rather than on formal grammar and literature. Students will learn romanization with tone markings rather than Chinese characters. CSU

CHIN 10B. Continuation of Beginning Conversational Cantonese (3)  
Lec-3, lab-2  
Prereq.: CHIN 10A  
Not open to native speakers of Cantonese.  
Second semester course. Continuation of extensive oral training in Cantonese. Emphasis on practical vocabulary and idiom rather than on formal grammar and literature. Students will learn romanization with tone markings rather than Chinese characters. CSU

CHIN 10C. Intermediate Conversational Cantonese (3)  
Lec-3, lab-2  
Prereq.: CHIN 10B  
Not open to native speakers of Cantonese.  
Third semester course. Continuation of extensive oral training in Cantonese. Designed for students who wish to continue acquiring more advanced skills of the spoken language with a minimum of formal grammar. Students will learn romanization with tone markings rather than Chinese characters. CSU

CHIN 10D. Continuation of Intermediate Conversational Cantonese (3)  
Lec-3, lab-2  
Prereq.: CHIN 10C  
Not open to students who have already completed 12 units of Conversational Cantonese.  
Not open to native speakers of Cantonese.  
Fourth semester course. Continuation of extensive oral training in Cantonese. Designed for students who wish to continue acquiring more advanced skills of the spoken language with a minimum of formal grammar. Students will learn romanization with tone markings rather than Chinese characters. CSU

CHIN 12A. Beginning Conversational Mandarin (3)  
Lec-3, lab-2  
Prereq.: CHIN 12A or 1A  
Not open to native speakers of Mandarin. Open to all beginning students.  
Extensive oral training in Mandarin. Emphasis on practical vocabulary, pronunciation, and idiomatic usage. Designed for students who wish to acquire basic skills of spoken Mandarin rather than reading and writing in Chinese characters. CSU

CHIN 12B. Continuation of Beginning Conversational Mandarin (3)  
Lec-3, lab-2  
Prereq.: CHIN 12A or 1A  
Not open to native speakers of Mandarin. Open to all beginning students with limited background in Chinese.  
Second semester course. Continuation of extensive oral training in Mandarin. Emphasis on practical vocabulary, pronunciation, and idiomatic usage. Designed for students who wish to acquire basic skills of spoken Mandarin rather than reading and writing in Chinese characters. CSU
CHIN 12C. Intermediate Conversational Mandarin (3)
Lec-3, lab-2 CR/NCR avail.
Prereq.: CHIN 12B or CHIN 1 or 1B
Not open to native speakers of Mandarin. Open to all students with limited background in Chinese.
Third semester course. Continuation of extensive oral training in Mandarin. Designed for students who wish to continue acquiring more advanced skills of the spoken language with a minimum of formal grammar. CSU

CHIN 14A. Conversational Mandarin for Speakers of Other Chinese Dialects: Level 1 (3)
Lec-3, lab-2 CR/NCR avail.
Not open to native speakers of Mandarin. Open to all beginning students of Mandarin who can speak at least one Chinese dialect. Recommended for Chinese speaking students and for students who have some knowledge of Chinese.
Beginner's course in Mandarin. Emphasis on practical vocabulary, pronunciation, and idiomatic usage. Designed for students who wish to acquire basic skills of spoken Mandarin rather than formal grammar and literature. CSU

CHIN 14B. Conversational Mandarin for Speakers of Other Chinese Dialects: Level 2 (3)
Lec-3, lab-2 CR/NCR avail.
Prereq.: CHIN 14A or equivalent
Not open to native speakers of Mandarin. Open to all other interested students of Mandarin. Recommended for Chinese speaking students and for students who have some knowledge of Chinese.
Continuation of oral training in Mandarin. Emphasis on practical vocabulary, pronunciation, and idiomatic usage. Designed for students who wish to acquire basic skills of spoken Mandarin rather than formal grammar and literature. CSU

CHIN 14C. Intermediate Conversational Mandarin for Chinese Speaking Students (3)
Lec-3, lab-2 CR/NCR avail.
Prereq.: CHIN 14B or equivalent
Not open to native speakers of Mandarin. Open to all students who can speak at least one Chinese dialect. Recommended for Chinese speaking students and for students who have some knowledge of Chinese. May not be offered every semester.
Continuation of extensive oral training in Mandarin. Emphasis on practical vocabulary, pronunciation and idiomatic usage. Designed for students who wish to acquire basic skills of spoken Mandarin rather than formal grammar and literature. CSU

CHIN 16. Chinese Characters for Beginners (3)
Lec-3 CR/NCR avail.
A beginner's course, taught in English.
Open to all students with limited or no background in written characters. Recommended to be taken concurrently with CHIN 1, 1A/1B, or CHIN 12 series, or CHIN 10 series.
An intensive study of 300 commonly used characters to enhance reading and writing Chinese. CSU/UC

CHIN 17. Continuation of Chinese Characters for Beginners (3)
Lec-3 CR/NCR avail.
Prereq.: CHIN 16 or demonstration of CHIN 16 exit skills
A continuation course, taught in English.
Open to all students with limited or no background in written characters. Recommended to be taken concurrently with CHIN 1, 2A/B, or CHIN 12 series, or CHIN 10 series.
An intensive study of additional 300 commonly used characters to enhance reading and writing Chinese. CSU/UC

CHIN 29A-29B. Chinese Literature in Translation (3-3)
Lec-3 CR/NCR avail.
Advise: Eligible for ENGL 1A
CHIN 29A not prerequisite to 29B. No knowledge of Chinese required.
Reading and discussion of representative works in English translation. CSU/UC

CHIN 31A-31B. Intermediate Mandarin Chinese for Bilingual Students (3-3)
Lec-3, lab-1 CR/NCR avail.
Prereq.: Open to students who have oral fluency in at least one Chinese dialect other than standard Mandarin and have learned approximately 800-1000 Chinese characters.
Chinese 31A is not a prerequisite for Chinese 31B. These courses may be taken non-sequentially.
Intensive training in written and spoken Mandarin with emphasis on reading and composition. Linguistic ability in both English and Chinese are used as a basis for increasing vocabulary and enhancing reading and writing skills through short stories, poems, essays and composition. Advanced training in written and spoken Mandarin. CSU/UC
These courses are designed for bilingual students who are effective in oral communication in at least one Chinese dialect other than standard Mandarin, but need formal training in both receptive and productive skills in Mandarin.

CHIN 39. Major Achievements of Chinese Thought and Culture (3)
Lec-3
Advise: Eligible for ENGL 1A
No knowledge of Chinese required. Not open to students who are enrolled in or who have completed CHIN 49.
Consideration of the humanistic traditions of China, the most recent archaeological discoveries, and their relation to those of other countries in East Asia. CSU/UC

CHIN 49. Major Achievements of Chinese Thought and Culture (3)
Lec-3 CR/NCR avail.
No knowledge of Chinese required. Not open to students who are enrolled in or who have completed CHIN 39.
Consideration of the humanistic traditions of China, the most recent archaeological discoveries, and their relation to those of other countries in East Asia. CSU
Classics
Announcement of Courses

CREDIT, DEGREE APPLICABLE COURSES:

CLAS 35. Tragic Dramas of Greece (3)
Lec-3 CR/NCR avail.
Prereq.: Eligible for ENGL 1A
An intensive consideration of the tragic dramas of Greece from
a literary standpoint. CSU/UC

Computer and Information
Science
Announcement of Curricula

General Information
For students who wish to transfer to a four-year college, or
who want computer training that will lead to employment, the
Computer and Information Science Department offers both
two-year degree programs and certificate programs. Areas of
study include computer programming, microcomputer user
support, multimedia, networking and telecommunications,
Databases, and Unix/Open Systems administration.

Degree Curriculum
Graduates of the two-year program in Computer and Informa-
tion Science will have the skills in computer programming or
computer support services required for transfer to a four-year
college or for employment as programming assistants, mainte-
nance programmers, user support and other entry level or
trainer positions. Upon successful completion of the curricu-
ulum, students receive the Associate of Science (AS) degree.

Options. Students may choose from two options for their
course of study towards a degree.
1. Computer Science. The Computer Science option pre-
pares students for transfer to four-year colleges for further
study in the area of computer science, as well as providing
training for entry level employment as computer program-
mers, analysts, network specialists, and technicians.
2. Computer and Information Science. The Computer and
Information Science option prepares students for entry-
level positions in microcomputer applications and user
support, or for transfer to four-year colleges for further
study in areas such as Information Science. Those who
want to prepare themselves for a career in other fields
requiring microcomputer theory and practice will benefit
from this course of study.

Admission. Enrollment is recommended only to students
who have completed one year of high school algebra with a
final grade of C or higher and one year of high school
geometry with a final grade of C or higher, or equivalent.

Course of Study. The curriculum includes instruction in the
fundamentals of computer use, problem solving, systems
analysis, programming in languages (such as C and C++,
Visual Basic, and JAVA), computer operations, UNIX/Open
Systems, databases (such as Oracle), and systems tools.
Current technologies such as microcomputer support, local
area networks and telecommunications are covered. Additional
requirements include the fundamentals of accounting, quanti-
tative methods and communication skills.

Award of Achievement. Students who satisfy the require-
ments for the degree and maintain an overall B average with
grades of B or higher in all CIS courses will also receive an
Award of Achievement. Credit/No-credit grades will not be
accepted toward an award of achievement.

Transfer to Other Colleges and Universities. Students
who complete the two-year Associate in Science degree
program may choose to continue their education and earn the
Bachelor’s degree. City College of San Francisco has transfer
agreements with many of the California State University and
University of California campuses. Students who are interested
in transferring after completion of the two-year degree
program should consult the “Transfer Information” section of
this catalog and discuss their plans with their program adviser
or counselor.

Computer Science
Courses Required for the Award of Achievement in
Computer Science
First Semester
Course Course Course Course Course
CIS 110A Intro to Prog & Prob Solving (C++) 3
CIS 167 Intro to UNIX Operating Sys 3
MATH 110A Calculus I 4
Additional graduation requirements* 4

Second Semester
Course Course Course Course Course Course Course Course
CIS 110B Programming II (C++) 3
MATH 110B Calculus II 4
PHYC 4A Physics for Sci and Engr 3
Additional graduation requirements* 3

Third Semester
Course Course Course Course Course Course Course Course
CIS 110C Programming & Data Structures 3
MATH 115 Discrete Math 3
PHYC 4B Physics for Sci and Engr 3
Additional graduation requirements* 3

Fourth Semester
Course Course Course Course Course Course Course Course
CIS 134A Microcomputer Database 3
or CIS 134B Network Databases
or CIS 142 Windows Programming
or CIS 144 Java Programming 3
CIS 123 Comp Arch with Assembly Lang 3
ENGN 20 Intro to Circ Analysis 3
Additional graduation requirements* 3

*Students should consult their counselor or program/degree
advisor to determine the total number of units and courses
needed to fulfill graduation requirements. Transfer require-
ments vary. Students are advised to consult with the depart-
ment program/degree advisor and a counselor.
Computer and Information Science

Courses Required for the Award of Achievement in Computer and Information Science

First Semester

Course                        Units
---                            ---
CIS 101 Intro to Commercial Data Proc     3
CIS 110A Intro to Prog & Prob Solving (C++)  3
ACCT 1 Fin Acct                   4
SPCH 1A Elem of Pub Speak
  or SPCH 11 Basic Publ Speak
  or SPCH 12 Fund of Oral Comm
  or ESL 79 Adv Speak & Pronunc    3
Additional graduation requirements*

Second Semester

Course                        Units
---                            ---
CIS 110B Programming II (C++)   
BSEN 76 Bus and Tech Report Writing  3
MATH 75 Math Anal for Bus       3
ACCT 2 Manag Acct               4
Additional graduation requirements*

Third Semester

Course                        Units
---                            ---
CIS 110C Programming & Data Structures 3
CIS 123 Comp Arch with Assembly Lang 3
Additional graduation requirements*

Fourth Semester

Course                        Units
---                            ---
CIS 134A Microcomputer Database Management
  or CIS 134B Network Databases    3
CIS 141A Intro Visual Basic       3
CIS 136 Systems Analysis         3
Additional graduation requirements*

*Students should consult their counselor or program/degree advisor to determine the total number of units and courses needed to fulfill graduation requirements. Transfer requirements vary. Students are advised to consult with the department program/degree advisor and a counselor.

Certificate Programs

The certificate programs are designed to meet the needs of students who want 1) to obtain entry-level employment, 2) to increase their opportunities to advance in their current positions, or 3) to change the kind of work they do currently. Certificate programs make it possible for a student to demonstrate specialization in the areas such as UNIX/Open Systems, networking, telecommunications, microcomputer user support, computer programming and multimedia.

Requirements for the Certificate of Completion: A student may obtain the Certificate of Completion by completing each of the courses offered in the certificate program with a grade of C or higher while maintaining a 2.00 GPA at City College. Credit/No-Credit grades will not be accepted toward completion of a certificate program. Core courses must be taken at CCSF.

Five certificate programs are available. Each program prepares a student for a different career path. Additional information is available from the Department degree advisor or the Department Chairperson.

Certificate in Computer Programming

The program of study for the certificate in computer programming includes instruction and practice in specific programming languages, as well as computer systems and the principles of automatic business data processing. This course of study prepares students for entry-level positions in computer programming in a variety of settings. Two concentrations are available: Visual Basic with Database option and C++ Programming option.

Required for both options:

Course                        Units
---                            ---
CIS 101 Intro to Comm Data Proc
  or CIS 104 Microcomp Hdwr      3
CIS 167 Intro to UNIX            3
CIS 136 Systems Analysis         3

Additional Requirements for the C++ Programming Option:

Course                        Units
---                            ---
CIS 110A Intro to Prog (C++)    3
CIS 110B Programming II (C++)   3
CIS 110C Programming and Data Structures 3
CIS 123 Computer Arch with Assembly
  or CIS 134B Network Databases  3
  or CIS 142 Windows Programming
  or CIS 144 Java Programming    3

Additional Requirements for Visual Basic with Database Option:

Course                        Units
---                            ---
CIS 134A Microcomputer Databases 3
CIS 134B Network Databases      3
CIS 141A Intro to Visual Basic   3
CIS 141B Visual Basic with Database 3

Certificate in Multimedia Programming

Multimedia Studies is a multi-disciplined curriculum in the design, development, tools, and production of interactive media. Four certificates of concentration are in Design and Graphics, Image and Sound, Performance Arts, and Computer Programming. (See Multimedia Studies in the IDST program for complete details.)

Multimedia Programming includes instruction and practice in specific programming languages and authoring tools. This course of study prepares graduates for entry level positions in computer programming in the multimedia field.

Certificate in Networking/ Telecommunications

The program of study for the Certificate of Completion in Networking/Telecommunications includes instruction and practice using LANs, wide-area networks, and modern communications. This course of study prepares students for entry-level positions in network administration.
Select one course from each group.

**Internet**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 135A Internet</td>
<td>3</td>
</tr>
<tr>
<td>CIS 330 Internetwork Design</td>
<td>2</td>
</tr>
</tbody>
</table>

**Server Operating System**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CIS 167 Intro to UNIX</td>
<td>3</td>
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</table>

**Client Operating System**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td>CIS 165 Windows</td>
<td>3</td>
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</table>

**Telecommunications**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td>CIS 130 Telecom</td>
<td>3</td>
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</table>

**Hardware**

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<thead>
<tr>
<th>Course</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CIS 104 Microcomp Hdwr</td>
<td>3</td>
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</table>

**Local Area Networking**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td>CIS 131 Local Area Networks</td>
<td>3</td>
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</tbody>
</table>

**Electives**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CIS 135B Advanced Internet</td>
<td>3</td>
</tr>
<tr>
<td>CIS 132T TCP/IP</td>
<td>2</td>
</tr>
<tr>
<td>CIS 301 Novell Network Admin</td>
<td>2</td>
</tr>
<tr>
<td>CIS 320 NT Admin</td>
<td>2</td>
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</tbody>
</table>

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**Computer and Information Science**

**Announcement of Courses**

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**System Administration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 169 UNIX System Admin</td>
<td>3</td>
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</tbody>
</table>

**Beginning Programming**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CIS 110A Intro to Programming (C++)</td>
<td>3</td>
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</table>

**Intermediate Programming**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CIS 110B Programming II (C++)</td>
<td>3</td>
</tr>
<tr>
<td>CIS 118 Prog in C</td>
<td>3</td>
</tr>
<tr>
<td>CIS 167P Perl Programming</td>
<td>3</td>
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</table>

**Internet**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 135A Internet</td>
<td>3</td>
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</table>

**Electives**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td>CIS 131 Local Area Networks</td>
<td>3</td>
</tr>
<tr>
<td>CIS 132T TCP/IP</td>
<td>2</td>
</tr>
<tr>
<td>CIS 134B Network Databases</td>
<td>3</td>
</tr>
<tr>
<td>CIS 170 UNIX Sys Programming</td>
<td>3</td>
</tr>
</tbody>
</table>

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**Certificate in Microcomputer User Support**

Graduates of this program will have the skills in microcomputer operation, software applications, and both network and single user computer systems to support a typical microcomputer environment in the workplace. Students work with hardware and software.

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 100M Intro to Comptrs Using Macs</td>
<td>3</td>
</tr>
<tr>
<td>CIS 104 Microcomputer Hdwr</td>
<td>3</td>
</tr>
<tr>
<td>CIS 104A Microcomputer Hdwr Adv</td>
<td>3</td>
</tr>
<tr>
<td>CIS 131 Local Area Networks</td>
<td>3</td>
</tr>
<tr>
<td>CIS 134A Microcomputer Databases</td>
<td>3</td>
</tr>
<tr>
<td>CIS 135A Internet</td>
<td>3</td>
</tr>
<tr>
<td>CIS 136 Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CIS 164 MS DOS</td>
<td>2</td>
</tr>
<tr>
<td>CIS 165 Windows</td>
<td>3</td>
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</tbody>
</table>

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**Certificate in UNIX/Open Systems**

The program of study for the Certificate of Completion in UNIX/Open Systems includes instruction and practice in using and administrating UNIX/Open System. This course of study prepares students for entry-level positions in UNIX/Open Systems operations and administration.

Select one course from each group.

**Information Systems**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 101 Intro to Comm Data Proc</td>
<td>3</td>
</tr>
<tr>
<td>CIS 100P Intro to Comptrs Using PCs</td>
<td>3</td>
</tr>
<tr>
<td>CIS 136 Systems Analysis</td>
<td>3</td>
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</tbody>
</table>

**Intro to Unix**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CIS 167 Intro to UNIX Op Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

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**CREDIT, DEGREE APPLICABLE COURSES:**

**CIS 100M. Introduction to Computers Using Macintosh (3)**

Lec-3, lab-3, CR/NCR avail.
A computer literacy course using the Macintosh computer. Use of computers to write papers, organize information, and to use email. Overview of computer components such as hardware, software, and data. Fundamentals of the Finder and applications such as word processing, spreadsheet, database, and telecommunications. Computers used to complete class assignments. CSU

**CIS 100P. Introduction to Computers Using PCs (3)**

Lec-3, lab-3
A computer literacy course using IBM-compatible computers. Use of computers to write papers, organize information, and to use email. Overview of computer components such as hardware, software, and data. Fundamentals of the Windows and DOS systems and applications such as word processing, spreadsheet, database, and telecommunications. Computers used to complete class assignments. CSU

**CIS 101. Introduction to Commercial Data Processing (3)**

Lec-3, lab-0.5
A beginning course in the use of automatic data processing to solve business problems. Emphasis on the fundamentals and vocabulary of systems, operating systems, data representation and manipulation, data processing techniques, developments, and trends. Concepts of management information systems and database systems. Survey of job opportunities in the computer field. Using the computer to solve several simple problems using the BASIC programming language. CSU
CIS 102E. Email (1)
Lec-1, lab-1
CR/NCR avail.
Logging on and off the CCSF computer network. Using passwords, home directories, and files. Email addressing; sending and receiving letters; using mail folders, distribution lists, address books; importing and exporting files; printing, forwarding, and replying to letters. Using an editor to compose and modify letters; using a signature file. CSU

CIS 102W. World Wide Web (1)
Lec-1, lab-1
CR/NCR avail.
Introduction to the World Wide Web internet service. Use browsers, graphical user interfaces, search tools. Create home pages. Use web browsers to access other internet services such as ftp, gopher, usenet, and email. CSU

CIS 104. Microcomputer Hardware (3)
Lec-3, lab-2
CR/NCR avail.
Advising: CIS 100P: 101 or 165
The structure of microcomputer hardware. Comparison of components, models, and input/output devices available in today's market. Description and demonstration of microcomputer components including assembly, configuration, upgrading, and preventive maintenance. Resolving software and hardware conflicts, fine tuning performance, and troubleshooting with software diagnostics. CSU

CIS 104A. Microcomputer Hardware Advanced (3)
Lec-3, lab-2
Prereq: CIS 104
Advanced concepts of microcomputer hardware, software, configuration, upgrading and diagnostics, including hardware components, software diagnosis, operating systems, and printer technology. Special emphasis on operating systems' installation, troubleshooting, and optimization; printer technology, installation and repair. Overview and discussion of the computer service industry. After completion, students should be prepared to take the industry-certified A+ examination. CSU

CIS 110A. Introduction to Programming (C++) and Problem Solving (3)
Lec-3, conf-1, lab-3
Advising: MATH 840
No prior programming experience required
Introduction to computer programming and problem solving. Concepts include: problem solving techniques, program design, charting, control structures, data structures, algorithms, use of the C++ programming language, a programming environment and hardware. Using computers and other methods to complete assignments. CSU/UC

CIS 110B. Programming II, C++ (3)
Lec-3, conf-1, lab-3
Prereq: CIS 110A
Continuation of CIS 110A. Covers pointers, arrays with structured elements, file handling, dynamic memory allocation, and building abstract data types. Programming assignments require planning, good coding practices, and documentation. Applications include both numerical and non-numerical problems. CSU/UC/CAN: CSCI 22

CIS 110C Programming and Data Structures (3)
Lec-3, lab-3, conf-1
Prereq: CIS 110B
Analysis and design of computer algorithms and the underlying data structures using an object-oriented approach. Analysis in the timing and efficiency of algorithms. Study of lists, stacks, queues, trees, searching, sorting, and recursion. Introduction to graphs, tables, hashing, and direct access files. Further study of abstract types. CSU/UC

CIS 111. Programming, BASIC (3)
Lec-3, conf-1, lab-3
Advising: MATH 840
Elementary computer programming. Understanding of and experience with using the computer language BASIC in order to solve a variety of problems. Students write, compile, and execute BASIC programs. CSU/UC

CIS 112. Programming, FORTRAN (3)
Lec-3, conf-1, lab-3
Advising: MATH 840
CIS 112 and ENGN 38 may not both be taken for credit.
An introductory course in computer programming using the language FORTRAN. Concepts of information processing, flowcharts, sorting, solutions to equations, array manipulation, and subroutines. Students use the computer to solve problems selected from various fields. CSU/UC

CIS 118. Programming in C (3)
Lec-3, conf-1, lab-3
Prereq: CIS 110A, 111, or 112
Introduction to computer programming using the language C. Recommended for students who are interested in systems programming, operating systems, system utilities and procedure-oriented applications software. Concepts of systems-level problem solving using standard programming techniques and the special programming features of this language. Students will develop and implement computer solutions to systems and applications type problems. CSU/UC

CIS 123. Computer Architecture with Assembly Language (3)
Lec-3, conf-1, lab-3
Prereq: CIS 110B or 118
This course emphasizes the organization and operation of real computer systems at the assembly-language level. The mapping of statements and constructs in a high-level language onto sequences of machine instructions is studied, as well as the internal representation of simple data types and structures. Numerical computation is examined, noting the various data representation errors and potential procedural errors. CSU/UC
CIS 130. Computer Telecommunications (3)
Lec-3, lab-3
Advise: CIS 135A
Use of computers to communicate with other computers. Emphasis on the hardware and software needed to perform computer communication such as: modems, multiplexors, communication software, and digital services such as: ISDN and ATM. Concepts of analog vs. digital signals, error checking methods, protocol standards, compression methods, character coding, and networking. Program smartmodems, write script files, and use communication software to access the CCSF network, BBs, information services, and the Internet. Students will learn the basic concepts of Telecommunications and make sense of the changing world of data communications. CSU

CIS 131. Local Area Networks (3)
Lec-3, lab-2
Prereq.: CIS 100P, 165 or 167
An analysis of technologies for connecting computers and computer related devices into LANs. This can be taught as a certified course that prepares the student for passing the Microsoft Windows NT Networking Essentials test (one of the 6 required courses in the Microsoft Certified System Engineering path). Upon completion of this course, the student will get a good overview of the following major components of a network: network orientation, connecting network components, physical or wireless linking, network functions (OSI), network architecture, network operations, network administration and support, topologies, protocols, larger networks (WANs) and solving network problems. CSU

CIS 132T. Networking with TCP/IP (3)
Lec-3, lab-3
Prereq.: CIS 167 and CIS 130 or 131
Advise: CIS 169 and 135A
Basics of configuring and maintaining TCP/IP networks. How TCP/IP protocols operate and how to configure TCP/IP on a UNIX network including adding hosts and network services, troubleshooting, and network security. Configuring TCP/IP client software on Macs and Windows and configuring routing tables. CSU

CIS 133. Computer Graphics and Desktop Publishing (3)
Lec-3, lab-3
Advise: CIS 100M or 100P
Repeat: max. 6 units
An introduction to Computer Graphics and Desktop Publishing for non-artists. Focus on technical aspects of graphics. Use of drawing/painting programs, presentation programs, and desktop publishing programs, as well as hardware such as scanners and digital cameras. Simple graphics programming. CSU

CIS 134A. Microcomputer Database Management Systems (3)
Lec-3, lab-3
Advise: CIS 100P
An introduction to microcomputer based database management systems. Design and development of relational database systems using client-based software. Students will use SQL and other database tools to define and manipulate the database. CSU

CIS 134B. Network Databases (3)
Lec-3, lab-3
Prereq.: CIS 110A, 111, 112, 134A, or 141A
An advanced course in the design and development of multi-user database systems running on networked computers using server based software. CSU

CIS 135A. Internet (3)
Lec-3, lab-3
Repeat: max. 6 units
CR/NCR avail.
Methods of using the Internet. Using tools for accessing Internet services such as electronic mail, Newsgroups, logon to remote computers (telnet), file transfer (FTP), real-time chat, gophers. History, protocols, and social implications of the Internet. Accessing services by use of a shell account, by use of a GUI browser, and with GUI-based client programs. Using browsers to access and search on the World Wide Web. Creation of individual Web sites. CSU

CIS 135B. Advanced Internet (3)
Lec-3, lab-3
CR/NCR avail.
Prereq.: CIS 135A
Repeat: max. 6 units
Use of HTML to create individual Web sites. Creation of links, lists, tables, and frames. Creation and manipulation of graphics, sound, and video for use in the Web site. Background graphics and sound. Design and programming of Forms and CGI scripts. POP mail and News group reading/posting with a GUI browser. MIME. Security of data on the Internet. Real-time communication on the Internet with voice and video. Introduction to programming in Javascript and Java. Use of Java applets in Web sites. CSU

CIS 136. Systems Analysis (3)
Lec-3, lab-1
Prereq.: CIS 110A, 111, 112, 134A or 141A
Analysis and design of computer-oriented systems from inception to implementation. Analysis of present systems, interviewing techniques, questionnaires, cost statements, forms design, problem definitions, presentations, and hardware and software alternatives. Case study of a typical commercial data-processing project. CSU

CIS 141A. Introduction to Visual Basic (3)
Lec-3, conf-1, lab-3
Not open to students who have completed CIS 141.
Advise: CIS 100P or 165 and MATH 840
Design and programming of the MS-Windows graphical user interface. A beginning course using Visual Basic for the development of Windows application programs with emphasis on standard interface design, event processing and control of focus. CSU

CIS 141B. Visual Basic with Database (3)
Lec-3, conf-1, lab-3
Prereq.: CIS 134A and 141A
Design and write applications using the Visual Basic and Visual Basic for Applications (VBA) programming languages in conjunction with the Access database. These applications will run under the Windows environment. CSU
CIS 142. Windows Programming with C++ (3)
Lec-3, conf-1, lab-3
Prereq.: CIS 110C or 119
Repeat: max. 6 units
Design and implement Windows programs using C++, object-oriented techniques, and Windows programming classes. Understand and use messages and event-driven programming. Employ Document/View architecture. Create and manipulate the standard graphical interface components. CSU

CIS 144. Java Programming (3)
Lec-3, conf-1, lab-3
Prereq.: CIS 110B or 118
Introduction to the general-purpose programming language Java. Includes development environment, objects and classes, inheritance, graphics programming, applets, exceptions, I/O, multithreading, and networking. Creation of interactive applets for the World Wide Web and stand-alone applications that incorporate the basic features of the language. CSU/UC

CIS 151-152-153. Current Topics in Computer and Information Science (1-2-3)
Lec-1, 2, 3
Repeat: If no subject repeat
Selected topics and issues of current interest in the field of computer and information science. CSU/UC

CIS 164. MS DOS (2)
Lec-2, lab-2
An intensive course covering the use of MS/PC DOS, the Operating System of IBM PCs, compatibles, and clones. Use of control keys, system commands, and utilities. A detailed examination of memory, peripherals, modems, interfaces, disk drives, batch files, CONFIG.SYS, AUTOEXEC.BAT, redirection and piping. Use of the DOS editor. Use of MS/PC DOS to complete class assignments. CSU

CIS 165. Windows (3)
Lec-3, lab-3
Repeat: max. 6 units
An analysis of the Graphical User Interface (GUI) for computer systems. Fundamentals of computer management through use of a GUI. Practice in setting up the interface and managing programs and data. Typical Windows applications. Comparison of several graphic interfaces. CSU

CIS 167. Introduction to the UNIX Operating System (3)
Lec-3, lab-3
Prereq.: CIS 101, 100M, or 100P
Introduction to the use of the UNIX operating system. Description of the major UNIX features and a structural overview. Examination of the UNIX file structure, UNIX utilities, shell programming, and system administration. CSU/UC

CIS 167P. Perl Programming (3)
Lec-3, conf-1, lab-3
Prereq.: CIS 167 and 110A, 111, or 112
Introduction to the interpreted language called Perl, the Practical Extraction and Report Language. Recommended for anyone working with UNIX files and processes. Semantics and syntax of the Perl language and includes discussion of the practical kinds of problems that Perl can solve and provides examples. Writing of programs that perform various tasks, including text, file and process manipulation. CSU/UC

CIS 169. UNIX System Administration (3)
Lec-3, lab-3
Prereq.: CIS 167
Examination of the skills necessary to effectively perform the responsibilities of a UNIX system administrator, such as: setting up new users, installing terminals, installing software, maintaining the file system, backing up files, startup and shutdown of the system, and maintaining security. Shell programming as an aid for automating system administration tasks. CSU

CIS 170. UNIX Systems Programming (3)
Lec-3, lab-3
Prereq.: CIS 167 and 118 or 110B
An overview of UNIX system calls, the functions in the standard library which access the lowest level resources of the UNIX operating system. Emphasis on writing programs for controlling file I/O, terminal I/O and buffering characteristics, process handling, signal handling, pipes, file locking, network-based inter-process communication using sockets, and RPC. Concrete examples of the UNIX system call interface using the C and/or C++ programming languages. CSU

CIS 171. Analysis of Spreadsheets (3)
Lec-3, lab-3
Survey of the various spreadsheet software available for microcomputers. Advantages, disadvantages, and internals of the most popular currently used spreadsheets. Comparisons of cost, characteristics, user-friendliness, and use. Graphing, database maintenance, and programming spreadsheet macros with Visual Basic for Applications. CSU

CIS 182. QuickTime for Webstreaming (3)
Lec-3, lab-3
Prereq.: CIS 100M, 100P or IDST 120, or demonstration of exit skills
Advises: CIS 183
Repeat: max. 6 units
An introduction to the technical specifications and parameters of Apple's QuickTime file format. Quicktime file authoring for Webstream content. Quicktime architecture, interface, roster of codecs. Strategies for sourcing and processing base image for maximum web performance. Analysis of QuickTime vs. AVI architecture, cross platform compatibility issues. CSU
CIS 183. Multimedia Tools (3)
Lec-3, conf-1, lab-3
Prereq.: CIS 100M or IDST 120
Repeat: max. 6 units
Hands-on survey of multimedia theory and practice. Team approach to the design and production of interactive multimedia projects. Multimedia applications, including authoring, video capture, audio capture, and animation. Multimedia hardware, including Macintosh and Windows platforms, audio and video capture cards, and peripherals. Macromedia Director will be used. CSU

CIS 184. Multimedia Programming (3)
Lec-3, conf-1, lab-3
Prereq.: CIS 183
Repeat: max. 6 units
An introductory course in computer programming for the creation of multimedia projects. Program design and implementation, including algorithms, data structures, control structures, style, and debugging techniques. Students will use Macromedia Director's Lingo scripting language on the College's microcomputers to create interactive multimedia projects. CSU

CIS 185. Advanced Multimedia Programming (3)
Lec-3, conf-1, lab-3
Prereq.: CIS 184
Repeat: max. 6 units
Advanced object-oriented programming for the creation of multimedia projects. Advanced data structures in Lingo, including multidimensional arrays and records using Macromedia Director. CSU

CIS 198A-198B-198C. Internship and Work Experience (1-2-3)
Work-5, 10, 15, conf-2
Prereq.: CIS 104A or 110B or 131 or 134A or 134B or 135B or 136 or 141B or 169 or 184
Repeat: max. 6 units
Work experience is supervised off-campus work involving the use of computers. Internship programs are joint ventures between institutions or companies in the Bay area and the Computer and Information Science Department. Students can be employed in any area including, but not limited to, entry level programmers, operators, technicians, or computer assistants. CSU

CIS 199. Independent Study (1-3)
Ind st-5/10/15
Prereq.: CIS 110C, 118, 135B, 136, 144, or 169
Repeat: max. 6 units (new subj.)
Large-scale individual projects in computer programming to be defined in cooperation with an instructor-supervisor. Student opportunity to complete independent programming study. CSU/UC

CIS 301. Novell Network Administration (2)
Lec-2, lab-2
Prereq.: CIS 131
Not open to students who have completed MABS 301.
Repeat: max. 4 units
Basic and fundamental network management tasks using a Novell Local Area Network. Includes user support, directory structures, security, backups, menus, mail, and use of files server and workstation utilities. Preparation for the Certified Novell Administrator examination. CSU
CIS 301 = MABS 301

CIS 320. NT Administration (2)
Lec-2, conf-1
Prereq.: CIS 131
This course provides a foundation for supporting Microsoft Windows NT operating system including the skills to configure, customize, optimize, integrate networks, and troubleshoot. CSU

CIS 321. NT Advanced Administration (2)
Lec-2, conf-1
Prereq.: CIS 320
This course provides students with the knowledge and skills required to install, configure and support Microsoft Windows NT Server network operating system in local and wide area network (WAN) environments. The course is designed to prepare students to meet the Microsoft Certified Professional requirements for Windows NT Server. CSU

CIS 322. NT Enterprise (2)
Lec-2, conf-1
Prereq.: CIS 321
A third course in a series for implementing, supporting, and troubleshooting Microsoft Windows NT network operating system, this course examines the various models and structures for an enterprise-wide network and emphasizes the skills to optimize network performance and to analyze and troubleshoot problems. CSU

CIS 330. Internetwork Design (2)
Lec-2, conf-1
Prereq.: CIS 100P
This course teaches how to design a wide area computer network. Starting with basic networking concepts, it teaches the OSI model, IP addressing, routing concepts, media, network management and analysis, and other factors effecting network design. It is the first of the Cisco Internetworking Academy series. CSU

CIS 331. Router Technologies (2)
Lec-2, conf-1, lab-3
Prereq.: CIS 330
Knowledge of skills to install, configure, customize, maintain and troubleshoot Cisco routers and other components. Second course in the Cisco Networking Academy series. CSU

Consumer Arts and Sciences
Announcement of Courses

NOTE: Some course include a materials fee.
CREDIT, DEGREE APPLICABLE COURSES:

CASC 15A. Clothing Study I (3)
Lec-2, lab-3
A beginning course utilizing basic sewing principles and concepts in the clothing field. Emphasis on skills and techniques, pattern analysis, fabric selection, fitting and construction processes. Students will construct 2-3 garments. CSU

CASC 15B. Clothing Study II (3)
Lec-2, lab-3
Prereq.: CASC 15A
Repeat: max. 6 units (var. cont.)
Elements of garment construction using advanced clothing construction methods; pattern alterations, couturier patterns, custom finishes. Techniques for difficult fabrics and knits. Sergers used. Student garments utilize class methods. CSU

CASC 19. Food and Culture (2)
Lec-1, lab-3
Repeat: max. 4 units (var. cont.)
This course may be offered through International Education in various countries.
Study of the cuisine of various cultures; food in relation to historical, geographical, and social customs; principles of international food preparation and evaluation of equipment used. Student food preparation. CSU/UC

CASC 20. Foods and Fitness (3)
Lec-3, lab-1, field trips
Survey of nutrient needs in different stages of the life cycle. Includes food and meal patterns appropriate for specialized dietary needs. Current controversies surrounding common health problems and dietary interrelationships. Analysis of weight control dietary regimes, nutritional assessment of individual's food intake. Evaluation of nutritional needs in relationship to various athletic sports and fitness and necessary diet food modifications. CSU

CASC 22. Textile Analysis (3)
Lec-4
Survey of nutrient needs in different stages of the life cycle. Includes food and meal patterns appropriate for specialized dietary needs. Current controversies surrounding common health problems and dietary interrelationships. Analysis of weight control dietary regimes, nutritional assessment of individual's food intake. Evaluation of nutritional needs in relationship to various athletic sports and fitness and necessary diet food modifications. CSU/UC

CASC 23. Fashion History (3)
Lec-3
Chronological study of costumes from antiquity to the present. Western, eastern and folk influences included. Analysis of sources of fashion design developed from influences of history and culture upon clothing. CSU

CASC 24A. Foods: Basic Skills (3)
Lec-2, lab-3, field trips
Elementary food preparation methods and techniques. Emphasis on cost effective seasonal food selection purchasing, and nutritious meal planning; food storage; preservation concepts; elementary nutrition. Skills necessary for prevention and correction of cooking errors. Full student laboratory participation. CSU

CASC 24B. Foods: Special Occasions (3)
Lec-2, lab-3
Repeat: max. 6 units (var. cont.)
Special occasion food planning and preparation. Principles and procedures involved in food selection, preparation, and storage; use of specialized cooking equipment; attractive presentations and table service. Student food preparation. CSU

(For additional food preparation classes also see the Hotel and Restaurant Department course listings.)

CASC 25A. Weaving I (2)
Lec-1, lab-3
Repeat: max. 4 units (var. cont.)
A beginning course in the fundamentals of loom controlled multi-harness weaves. Emphasis on the fundamentals of fiber classification, yarn calculation, comprehensive drafting, weave analysis and fabric finishing techniques. CSU

CASC 25B. Weaving II (2)
Lec-1, lab-3
Expands the experience and techniques of Weaving I and introduces computer use for textile design. The following weave structures will be covered: twill derivatives, double weaves, unit class weaves such as Summer and Winter and satin weave. A class project will be woven on the AVL dobby loom. CSU

CASC 26A. Flat Pattern Design (3)
Lec-2, lab-3
Prereq.: CASC 15A
Principles and techniques of designing a garment pattern using flat pattern methods. Students construct a basic fitting sloper, analyze advanced pattern design problems and create an original design finished garment. CSU

CASC 26C. Advanced Flat Pattern (3)
Lec-2, lab-3
Prereq.: CASC 26A
Continuation of techniques for pattern development, with an emphasis on industry production skills. Techniques covered include the development of more complex designs, patterns for stretch fabric, and use of the computer to create original patterns. CSU

CASC 27. Fashion Draping (3)
Lec-2, lab-3
Prereq.: CASC 15A
Repeat: max. 6 units (var. cont.)
Draping for garment design and fit. Techniques and concepts of draping the human figure using cloth as the starting point. Draping a fitting shell, draping with special fabrics, and draping for unusual design problems. CSU
CASC 28. The Social Meaning of Clothing (2)
Lec-2
The interrelationship of clothing and culture, including the psychological aspects of clothing and human behavior. Analysis of clothing use as a social tool. Comparison of regional and class differences as represented by clothing. CSU/UC

CASC 29. Grading and Marker Production (2)
Lec-1, lab-3
Prereq.: CASC 26A (concur.)
Techniques for grading patterns into multiple sizes and creating markers for pattern layouts utilizing both conventional and computerized methods. CSU

CASC 33. Design Portfolio in Fashion (1)
Lec-1
Prereq.: CASC 35
Instructs the student in the presentation of their work in a professional portfolio for the purpose of employment. Selection of illustrations for style and medium, types of portfolios available, and overall professional presentation standards will be covered. CSU

CASC 34. Production Technology (2)
Lec-2, field trips
All phases of the manufacture of wearing apparel and accessories. The student will learn technological limitations and possibilities, operation of machines used in production and manufacturing techniques. CSU

CASC 35. Fashion Drawing (3)
Lec-2, lab-3
Repeat: max. 9 units
Drawing of the fashion figure including working sketches. The clothed figure in motion with emphasis on textile characteristics, color mediums, and construction details. Development of a personal illustration style and a portfolio. CSU

Formerly ART 138

CASC 36. Principles of Fashion Design (3)
Lec-3
Basic design principles examined as they apply to clothing for men, women and children. Includes design modifications as required by fabrics, body characteristics and fashion trends. Overview of the process of developing a line of manufactured clothing. Student portfolio. CSU

CASC 50. Fashion Design and Production Internship (2)
Work-10
The student, upon completion of the required course work in Fashion Design and Production, qualifies for placement as an intern with a local manufacturer or designer. The student will experience actual working conditions and problems from design to finished product. CSU

CASC 64. Surface Design I (3)
Lec-2, lab-3, field trips
Repeat: max. 4 units (var. cont.)
Printing designs on fabric via painting, stamping, stenciling, air brushing, photo silkscreening, transferring and marbleizing. Emphasis is on technique, color and design. CSU

CASC 65. Surface Design II (3)
Lec-2, lab-3, field trips
Prereq.: CASC 15A
Two dimensional Surface Design created by the manipulation of fabrics and enhanced with sewn-on embellishments. Trapunto, layering/texturing, quilting, patchwork, pleating, applique, and beading. Fee may be charged. CSU

CASC 71. Apparel Art (2)
Lec-2, field trips
Advise: CASC 6052 (concur.)
Class will present garment design possibilities in techniques such as: weaving, quilting, fabric painting, applique, beading, felting and reconstructed fabric making. Pattern designing emphasized. CSU

NONCREDIT COURSES:
CASC 6000. Pattern Design and Drafting (52 hrs)
Development of skills in designing and drafting patterns. Design includes variations in basic patterns for blouses, skirts, collars, sleeves, dresses, pants, and suits.

CASC 6003. Upholstery
Introduction to upholstering furniture and to making furniture starting from the frame. Use of tools, cutting and fitting different fabrics, fillings and placement of fabrics.

CASC 6004. Weaving - Contemporary Basketry
Contemporary and traditional basketry. Coiling, twining, plaiting, and knotless netting using natural fibers and innovative modern materials.

CASC 6005. Weaving - Beginning
Prereq.: CASC 6008
Design and weaving of textiles using 4 harness floor looms. Simple weave structures are taught, stressing craftsmanship, sensitivity to materials and an appreciation of the medium.

CASC 6006. Expanded Woven Design (70 hrs)
Prereq.: CASC 6005
The design and weaving of textiles using 4 and 8 shaft floor looms. Introduction to 16 shaft dobby loom design and technology. Projects expand basic weave structures with emphasis on best choice of materials, technique and appreciation of the medium. Emphasis on imaginative applications of basic technology to innovative resolutions.

CASC 6007. Art Weaving (70 hrs)
Design and weave textiles using 4 and 8 harness treadle looms and 16 harness computer driven looms. Utilizing computer weaving programs, emphasis will be placed on weave structure theory to enable students to conceptualize and create signature fabrics. Integration of the woven structure with dyeing and surface design processes applied before, during and after weaving. Exercises to enhance confidence in color and design skills.

CASC 6008. Weaving Tapestry
Integrating traditional Aubusson tapestry techniques with contemporary techniques and materials. All levels: beginning - samplers; intermediate - cartoons; advanced - approved, preplanned pieces.
CASC 6012. Clothing Construction-Multi-Level

CASC 6014. Fashion Sewing and Alteration
Development of skills in clothing construction. Areas include tailoring, dressmaking, fitting, alterations. Students provide materials and supplies.

CASC 6025. Quiltmaking
Prereq.: ABE 2071
Develop/improve skills in sewing, design, pattern drafting, applique, patchwork and quilting. Beginning students construct a sampler quilt. Intermediate/advanced students work on individually designed projects.

CASC 6027. Surface Design - 3-dimensional
Applications of design on fabric via painting silk screening, airbrushing, stenciling, blueprinting, marbleizing and sculpting. Pattern drafting for 3-dimensional objects: figures, animals, boxes, masks, headdresses and footwear. Emphasis on color and design.

CASC 6040. Interior Textiles
Lab-2; field trips
Prereq.: CASC 6006
Advise: CASC 70 (concur.)
Woven structures used in interior furnishings. Practice techniques of upholstery, drapery, rugs, bed coverings, wall weavings and table matting. Relationship to commercial production of these products is emphasized. A notebook with sample woven presentations is recommended.

CASC 6050. Lingerie (70 hrs)
Basic underwear design principles will be examined as they apply to men and women and children. This will include design modifications based on individual creativeness, body shape, figure accents, and selection of fabrics and notions. Course will focus on both consumer and industrial production.

CASC 6051. Millinery
All aspects of basic hat making, including sewn hats, framed hats, straw hats, and felt hats. Application of trims and embellishments included.

CASC 6052. Apparel Art (35 hrs)
Prereq.: CASC 6012
Advise: CASC 71 (concur.)

CASC 6055. Upholstery Trade
Upholstering as a trade. Focusing on the skills necessary for upholstering new and existing residential and commercial upholstered furniture. Upholstering as a professional business - wholesale or retail, including fabric and pattern layout, sewing.

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Consumer Education
Announcement of Courses

NONCREDIT COURSE:
HOEC 6122. Consumer Education - Health and Nutrition
Includes the practices for maintaining good health, well-being and physical fitness. Information on nutrition and personal safety.

Dental Assisting
Announcement of Curricula

Degree Curriculum
Training in the curriculum in Dental Assisting is designed to prepare students for employment as Registered and Certified Dental Assistants in private practice, specialty dentistry, hospitals, clinics and dental schools. Positions to which graduates may advance with experience and further training include those of dental product sales representative, insurance auditor, manager, supervisor and educator. This program includes instruction in intra-oral dental functions and direct patient care/chairstside experience in dental schools, clinics and private offices and public dental care facilities in San Francisco and the Daly City/South San Francisco area. Students who have completed their training satisfactorily are qualified to take the state licensure examination to become Registered Dental Assistants and the national licensure examination to become Certified Dental Assistants.

Accreditation. The program in Dental Assisting is accredited by the American Dental Association's Commission on Dental Accreditation, a specialized accrediting body recognized by the Council on Postsecondary Accreditation and the United States Department of Education, and is accredited by the Board of Dental Examiners, Department of Consumer Affairs, State of California.

Course of Study. The two-year course of study includes instruction in traditional four-handed dental assisting techniques and in the legally allowed intra-oral functions delegated to a registered dental assistant. Courses in dental anatomy, dental material, radiography, and preventive dentistry are prerequisites to clinical instruction. The clinical phase of the curriculum utilizes the School of Dentistry at the University of California, San Francisco; the School of Dentistry of the University of the Pacific at San Francisco; affiliated hospital clinics; and selected private dental offices.

Associate in Science Degree. The curriculum is designed so that students may satisfy the requirements for graduation from the College and receive the degree of Associate in Science.

Information Regarding Admission. Requests concerning admission should be addressed as follows: Department Head, Dental Assisting, Box L-240, City College of San Francisco, 50 Phelan Avenue, San Francisco, California 94112.