TRTV 170. Destination: Central America, South America, and Mexico (3)
Lec-3
An introduction (from the travel and tourism perspective) to Mexico and the countries of Central and South America: their locations, languages spoken, religions practiced, holidays observed, cultures, time zones, topography, points of touristic interest, documentation required, and ease of travel between the countries. Also included are the hotels and resorts of the area, the transportation systems that serve it, and the development of typical itineraries for the regions. CSU

Word Processing
See curricula and course listings under Office Technology in this section of the catalog.

Work Experience
CREDIT, DEGREE APPLICABLE COURSES:

WKEX 197. Work Experience (3)
Work-15
Prereq.: Students must be concurrently enrolled in at least seven semester units, including this course, and working in their major field
Repeat: max. 6 units
This course involves student work experience with cooperating employers. Students should be aware that the course content and methodology may vary semester to semester. However, a minimum of one orientation lecture, two work site contacts by the instructor, and two semester conferences between instructor and student are required. CSU

WKEX 301. General Career Work Experience (1)
Work-5
Prereq.: Approval of the Employer. Students must enroll for at least five semester units in addition to this course.
Students may not enroll in this course if they are enrolled in another work experience course.
Repeat: max. 6 units
An orientation to the world of work and a solid foundation for career planning, using the resources of both the College and the employer. Designed for the student who may not yet have selected a specific occupational goal, but who is presently employed. CSU

WKEX 302. General Career Work Experience (2)
Work-10
Prereq.: Approval of the Employer. Students must enroll for at least five semester units in addition to this course.
Students may not enroll in this course if they are enrolled in another work experience course.
Repeat: max. 6 units
An orientation to the world of work and a solid foundation for career planning, using the resources of both the College and the employer. Designed for the student who may not yet have selected a specific occupational goal, but who is presently employed. CSU

WKEX 303. General Career Work Experience (3)
Work-15
CR/NC only
Prereq.: Approval of the Employer. 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.
Repeat: max. 6 units
An orientation to the world of work and a solid foundation for career planning, using the resources of both the College and the employer. Designed for the student who may not yet have selected a specific occupational goal, but who is presently employed. CSU

WKEX 805. Work Experience (1)
Work-5
CR/NC only
Prereq.: Arrangement with the course instructor and the instructor or administrator for whom the student works.
Students must enroll for at least six semester units in addition to this course. Students may not enroll in another work experience course at the same time.
Repeat: combination WKEX 805, 806, 807 max. 6 units
Designed to introduce students to the world of work: punctuality, personal appearance, direction taking, job completion and workplace diplomacy. The content of this course varies.

WKEX 806. Work Experience (2)
Work-10
CR/NC only
Prereq.: Arrangement with the instructor and the department Work Experience Coordinator. Students must enroll for at least five 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: combination WKEX 805, 806, 807 max. 6 units
Designed to introduce students to the world of work: punctuality, personal appearance, direction taking, job completion and workplace diplomacy. The content of this course varies.

WKEX 807. Work Experience (3)
Work-15
CR/NC 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: combination WKEX 805, 806, 807 max. 6 units
Designed to introduce students to the world of work: punctuality, personal appearance, direction taking, job completion and workplace diplomacy. The content of this course varies.

Chemistry
Announcement of Courses

CREDIT, NON-DEGREE APPLICABLE COURSES:

CHEM C. Introduction to Calculation in Chemistry (1)
Conf-1.5
CR/NC only
Coreq.: CHEM 101A
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 CHEM 101A.
CHEM D. Chemistry Calculations (1)
Confr-1.5
Coreq.: CHEM 103A
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 CHEM 103A.

CHEM E. Organic Problem-Solving Methods I (1)
Confr-1.5
Coreq.: CHEM 212A
Recommended as a supplement to be taken concurrently with CHEM 212A for students who need additional help.
Illustration and discussion of problem-solving methods in CHEM 212A.

CHEM F. Organic Problem-Solving Methods II (1)
Confr-1.5
Coreq.: CHEM 212B
Recommended as a supplement to be taken concurrently with CHEM 212B for students who need additional help.
Illustration and discussion of problem-solving methods in CHEM 212B.

CREDIT, DEGREE APPLICABLE COURSES:
CHEM 17. Problem-Solving Methods (3)
Lec-3
Prereq.: Completion/concurrent enrollment in MATH 840, or placement in MATH 860 or higher
The normal progression is from CHEM 17 to CHEM 40.
Students who have completed CHEM 40, 101A, or 103A may not receive credit for CHEM 17.
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 32. Introduction to Medical Chemistry (4)
Lec-3, lab-3
CR/NC avail.
Open to all students. No previous chemistry or physics required.
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 and organic chemistry, biochemistry, and physics as they apply to the chemistry and physics of the human body. CSU
Formerly CHEM 30+31

CHEM 40. Introduction to Chemical Principles (4)
Lec-3, conf-1, lab-3
Prereq.: HS Algebra or MATH 840 or placement in MATH 860 or higher
Advise: Completion/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 CHEM 101A or 103A. Satisfies recommended prerequisite for PHYS 12 and M B 12, although CHEM 32 is 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 concurrently.
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/UG

CHEM 50. Chemistry for Biotechnology and Health Careers (3) fa
Lec-3
Advise: One year HS algebra or MATH 840. One year of HS chem, with lab; or CHEM 30 and 31; or CHEM 32, 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. This is a Biotechnology Certificate Program designed to prepare students to enter the local work force in the biotechnology industry. Students in health care 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
Advise: CHEM 101B or 103B; or completion/concurrent enrollment in CHEM 50
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
Prereq.: CHEM 50, or 30 and 31, or 32
Chemical foundations for biotechnology and health careers. Introduction to organic chemistry: structures and reactivity of typical organic functional groups. Introduction to biochemistry: carbohydrate, lipid and protein chemistry; metabolic pathways; nucleic acids, gene expression, and genetic engineering. CSU
CHEM 53. Laboratory for Bio-technology and Health Careers (2) sp
Lab-6, field trips
Prereq.: CHEM 50 and 51; or 30 and 31; or 32
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
Principles of ethics and their applications in scientific work. Issues to be considered include professional ethical standards, relationship of science to public policy, role of government regulations and rationale for scientific research. Case studies will be 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 CR/NCR avail.
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 CR/NCR avail.
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. General College Chemistry (5)
Lec-4, lab-6
Prereq.: CHEM 32, 40, or 50, or an advanced placement test score of 3 or higher, or placement in CHEM 101A-103A by examination and advising; and MATH 860 or placement in any math course higher than MATH 860
Students who are majoring in engineering, except chemical engineering, should enroll in CHEM 103A.
CHEM 101A/101B are the standard college courses required in many curricula. CHEM 101A may be substituted for CHEM 103A. Students who have passed CHEM 103A may not receive credit for CHEM 101A.
Stoichiometry, solubility, solutions, qualitative analysis, ideal gases, imperfect gases, thermochemistry, atomic structure, electrolysis, nuclear chemistry, periodic table, chemical bonding, and crystal structures. CSU/UC/CAN

CHEM 101B. General College Chemistry (5)
Lec-3, lab-6
Prereq.: CHEM 101A or 103A
CHEM 101B may be substituted for CHEM 103B. Students who have passed CHEM 103B may not receive credit for CHEM 101B.
Chemical kinetics, gaseous equilibria, acid-base equilibria, solubility equilibria, complex ion equilibria, chemical thermodynamics, oxidation and reduction, electrochemistry, molecular orbital theory, symmetry, transition metal ions, descriptive chemistry of selected elements, and introduction to organic chemistry. CSU/UC/CAN

CHEM 103A. General Chemistry for Engineering (4)
Lec-4, lab-3
Prereq.: CHEM 32, 40, or 50, or an advanced placement test score of 3 or higher, or placement in CHEM 101A-103A by examination and advising; and MATH 860 or placement in any math course higher than MATH 860
Designed for students majoring in all engineering programs except chemical engineering. Students who have passed CHEM 101A may not receive credit for CHEM 103A.
Stoichiometry, gas behavior, solution properties and reactions, thermochemistry, atomic structure and bonding, properties of solids and liquids, special projects. CSU/UC

CHEM 103B. General Chemistry for Engineering (4)
Lec-4, lab-3
Prereq.: CHEM 103A or 101A
Designed for students majoring in all engineering programs except chemical engineering. Students who have passed CHEM 101B may not receive credit for CHEM 103B.
Electrolytes, ionic equilibria, thermodynamics, electrochemistry, periodic properties of the elements, descriptive chemistry, and introductory organic chemistry. CSU/UC

CHEM 107. Computers in Chemistry (2) sp
Lec-1, lab-3
Prereq.: Completion/concurrent enrollment in CHEM 101A or 103A
Spreadsheet programs and the BASIC programming language will be used as tools for problem solving, calculations, graphing and visual presentation of chemical data. Students will also use mathematical utilities programs in chemical settings. All projects utilize the principles taught in general chemistry. No prior computer experience is required. CSU/UC

CHEM 110. Chemistry for Non-scientists (3)
Lec-3 CR/NCR avail.
Advise: 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, 103A, 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 Non-scientists (1)
Lab-3 CR/NCR avail.
Prereq.: Completion/concurrent enrollment in CHEM 110
Laboratory practice in modern and commonly used chemical techniques. CSU/UC
CHEM 205. Quantitative Analysis (4)  
Lec-2, lab-6  
Prereq.: CHEM 101B or 103B  
*Recommended that CHEM 205 be taken soon after CHEM 101B-103B.*  
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 208A. Organic Chemistry (4)  
Lec-3, lab-3  
Prereq.: CHEM 101A or 103A  
*Students who have passed CHEM 212A may not receive credit for CHEM 208A.*  
The first semester of a one-year course in organic chemistry for students not majoring in chemistry or biochemistry. CHEM 208A/208B is designed for students majoring in the life sciences, including pre-medical students. CSU/UC  

CHEM 208B. Organic Chemistry (4)  
Lec-3, lab-3  
Prereq.: CHEM 208A or 212A  
*Students who have passed CHEM 212B may not receive credit for CHEM 208B.*  
The continuation of CHEM 208A. CSU/UC  

CHEM 212A. Organic Chemistry (5)  
Lec-4, lab-6  
Prereq.: CHEM 101B or 103B  
*Students who have passed CHEM 208A may not receive credit for CHEM 212A. CHEM 212A may be substituted for CHEM 208A.*  
The first semester of a one-year course in organic chemistry for students who major in chemistry, biochemistry, or other sciences. CHEM 212A/212B also satisfies the organic chemistry requirement of medical schools. CSU/UC  

CHEM 212B. Organic Chemistry (5)  
Lec-4, lab-6  
Prereq.: CHEM 212A or 208A  
*Students who have passed CHEM 208B may not receive credit for CHEM 212B. CHEM 212B may be substituted for CHEM 208B.*  
The continuation of CHEM 212A. CSU/UC  

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**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>
<th>Course</th>
<th>Units</th>
</tr>
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<tbody>
<tr>
<td>CDEV 53 Child Growth and Develop</td>
<td>3</td>
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<tr>
<td>CDEV 65 Orientation to Early Childhood Prog</td>
<td>3</td>
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<tr>
<td>CDEV 66 Intro to Early Childhood Curr</td>
<td>3</td>
</tr>
<tr>
<td>CDEV 67 The Child, Family, and Community</td>
<td>3</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  

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**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 of “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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<td>CDEV 67 The Child, Family, and Community</td>
<td>3</td>
</tr>
<tr>
<td>CDEV Elective Courses</td>
<td>6</td>
</tr>
</tbody>
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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.
Course Units
CDEV 53 Child Growth and Develop .......... 3
CDEV 65 Orientation to Early Childhood Prog ........ 3
CDEV 66 Intro to Early Childhood Curr .......... 3
CDEV 67 The Child, Family, and Community ....... 3

Area of Specialization: Infant/Toddler Care
CDEV 61 Infant/Toddler Growth and Develop .... 3
CDEV 62 Infant/Toddler Curr ................. 3

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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 of “C” or better is required in all certificate courses.

Course Units
CDEV 53 Child Growth and Develop .......... 3
CDEV 65 Orientation to Early Childhood Prog ........ 3
CDEV 66 Intro to Early Childhood Curr .......... 3
CDEV 67 The Child, Family, and Community ....... 3

Area of Specialization: School-Age Care
CDEV 95 School-Age Curr ................. 3
CDEV 97 School-Age Child Growth and Develop ... 3

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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.

Course Units
CDEV 53 Child Growth and Develop .......... 3
CDEV 66 Intro to Early Childhood Curr .......... 3
CDEV 67 The Child, Family, and Community ....... 3
CDEV 100 Violence and Its Impact on Children .... 3

Area of Specialization: Violence Intervention
CDEV 101 Violence Intervention Techniques .... 3
CDEV 102 Practicum and Fieldwork ............. 3

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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/NC 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 Childcare Center in San Francisco
CDEV 41F. Serving Children with Special Needs in Family Childcare
CDEV 41G. Communicating with Parents and Guardians in Family Childcare
CDEV 41H. Environments in Family Childcare
CDEV 41I. Advanced Business Practices in Family Childcare
CDEV 41J. Infant/Toddler Development in Family Childcare
CDEV 41K. Infant/Toddler Curriculum in Family Childcare
CDEV 41M. Substitute Teaching in ECE Programs

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 prospective 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 developmentally 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 childcare setting. Emphasis on the child in urban settings. Overview of current trends in infant and day care. CSU

CDEV 70. Family Childcare (1)
Lec-1
Overview of the operation and development of a family childcare 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
Repeat: max. 6 units
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 74. Children with Special Needs (3)
Lec-3
An overview of the developmental needs of children with special needs and the role the childcare teacher and the child development environment plays in supporting growth and 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 childcare 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 Childcare Curriculum (3)
Lec-3
Exploration of understanding child development and family concerns that are essential in planning a developmentally appropriate school-age childcare 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 development from ages five through twelve, covering physical, cognitive, language and social development of the child. Developmental theories will be introduced and issues affecting the lives of school-age children in contemporary society will be explored. GSU

CDEV 98. Sensory-Motor Development and Activities in Early Childhood Programs (3)
Lec-3
Prereq.: Completion/concurrent enrollment in CDEV 53
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. GSU

CDEV 100. Violence and Its Impact on Children and Their Families (3)
Lec-3
Exploration of violence in America and its impact on the physical and psychological well-being of children, their families and early childhood teachers. Emphasis on the relationship of self-awareness and multicultural awareness as critical factors in understanding appropriate early childhood violence prevention and intervention strategies. CSU

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 the 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 (9 wks), lab-12 (1 wk)
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/NC avail
Prereq.: Placement in ESL 52 and 54 or higher or completion of ESL 42 and 44; or 58; 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
Exploration of 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. Designed for parents whose children are presently in out-of-home care or in danger of being placed in out-of-home care. 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. Parents and Infants (54 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 (44 hrs)
Informal discussion 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.

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

CDEV 8101. State Preschool Program (72 hrs)
Prepresents 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 per week. (Parent attends 416 hours.)

CDEV 8104. Parent Participating Class (298 hrs)
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. (Parent attends 517 hours)

CDEV 8112. Preschool Child in Day Care (54 hrs)
A study of the growth and development of the preschool child in the day care setting.

CDEV 8117. Current Issues in Childcare (90 hrs)
Classes designed for parents and guardians of children enrolled in childcare programs. Each class focuses on a specific aspect of childcare affecting parents/guardians of preschool and school-age children. Topics include the relationship of the childcare program to the family and how childcare 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 childcare. (Classes may be made available on-site at large businesses).

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
CR/NC avail.
Adviser: Eligible for 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/CAN

CHIN 1A-1B. Elementary Chinese (3-3)
Lec-3, lab-2
CR/NC avail.
Prereq.: CHIN 1B: CHIN 1A or equivalent
Adviser: CHIN 1A: ENGL 94 or ESL 82 or completion of any City College or University foreign language course
Beginner's courses. (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/CAN
CHIN 1A-1B = CHIN 1

CHIN 2. Continuation of Elementary Chinese (5)
Lec-5, lab-2
CR/NC avail.
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/CAN

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

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

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

CHIN 4. Continuation of Intermediate Chinese (5)
Lec-5, lab-1
CR/NC avail.
Prereq.: CHIN 3 or equivalent
Fourth semester course. Grammar, composition and reading. Practice in speaking and understanding Mandarin. Understanding of Chinese culture. CSU/UC
CHIN 4A-4B. Continuation of Intermediate Chinese (3-3)
Lec-3, lab-1
Prereq.: CHIN 3 or 3B or equivalent CHIN 4B: CHIN 4A or equivalent
CSU/UC
CHIN 4A-4B = CHIN 4

The 12 unit sequence of Chinese 10A-10B-10C-10D permits three repeats for a total of 21 units. It is the student's prerogative to choose which courses will be repeated.

CHIN 10A. Beginning Conversational Cantonese (3)
Lec-3, lab-2
Not open to native speakers of Cantonese. Open to all beginning students.

CHIN 10B. Continuation of Beginning Conversational Cantonese (3)
Lec-3, lab-2
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 CR/NC avail.

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 CR/NC avail.

CHIN 10D. Continuation of Intermediate Conversational Cantonese (3)
Lec-3, lab-2
Prereq.: CHIN 10C
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 CR/NC avail.

The 9 unit sequence of Chinese 12A-12B-12C permits three repeats for a total of 18 units. It is the student's prerogative to choose which courses will be repeated.

CHIN 12A. Beginning Conversational Mandarin (3)
Lec-3, lab-2
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 CR/NC avail.

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 CR/NC avail.

CHIN 12C. Intermediate Conversational Mandarin (3)
Lec-3, lab-2
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 The 9 unit sequence of Chinese 14A-14B-14C permits three repeats for a total of 18 units. It is the student’s prerogative to choose which courses will be repeated.

CHIN 14A. Conversational Mandarin for Speakers of Other Chinese Dialects: Level 1 (3)
Lec-3, lab-2
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 CR/NC avail.

CHIN 14B. Conversational Mandarin for Speakers of Other Chinese Dialects: Level 2 (3)
Lec-3, lab-2
Prereq.: CHIN 14A 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.
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
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 continue acquiring skills of spoken Mandarin rather than formal grammar and literature. CSU

CHIN 16. Chinese Characters for Beginners (3)
Lec-3
CR/NC 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 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/NC 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 1A-1B, 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/NC 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/NC 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 1A is not a prerequisite for Chinese 1B. 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 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/NC avail.
No knowledge of Chinese required. Not open to students who are enrolled in or 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/NC avail.
Prereq.: ENGL 96 or placement in 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 Information 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, maintenance programmers, user support and other entry level or trainee positions. Upon successful completion of the curriculum, 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 prepares 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 programmers, 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, quantitative methods and communication skills.

**Award of Achievement.** Students who satisfy the requirements 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 advisor or counselor.

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### Computer Science

**Courses Required for the Award of Achievement in Computer Science**

**First Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 110A Intro to Programming</td>
<td>3</td>
</tr>
<tr>
<td>CIS 167 Intro to UNIX Operating System</td>
<td>3</td>
</tr>
<tr>
<td>MATH 110A Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>Additional graduation requirements*</td>
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</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 110B Programming Fundamentals I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 110B Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYC 4A Physics for Sci and Engr</td>
<td>3</td>
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<tr>
<td>Additional graduation requirements*</td>
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</table>

**Third Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CIS 110C Programming Fundamentals II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 15 Discrete Math</td>
<td>3</td>
</tr>
<tr>
<td>PHYC 4B Physics for Sci and Engr</td>
<td>3</td>
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<tr>
<td>Additional graduation requirements*</td>
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</tbody>
</table>

**Fourth Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CIS 134A Client-based Database</td>
<td>3</td>
</tr>
<tr>
<td>or CIS 134B Network Databases</td>
<td></td>
</tr>
<tr>
<td>or CIS 142 Windows Programming</td>
<td>3</td>
</tr>
<tr>
<td>or CIS 144 Java Programming</td>
<td></td>
</tr>
<tr>
<td>CIS 123 Comp Arch with Assembly Lang</td>
<td>3</td>
</tr>
<tr>
<td>ENGN 20 Intro to Circ Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Additional graduation requirements*</td>
<td></td>
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</tbody>
</table>

*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.

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### Computer and Information Science

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

**First Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td>CIS 101 Intro to Commercial Data Proc</td>
<td>3</td>
</tr>
<tr>
<td>CIS 110A Intro to Programming</td>
<td>3</td>
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<tr>
<td>ACCT 1 Fin Acct</td>
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<td>SPCH 1A Elem of Pub Speak</td>
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<tr>
<td>or SPCH 11 Basic Publ Speak</td>
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<tr>
<td>or SPCH 12 Fund of Oral Comm</td>
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<tr>
<td>or ESL 79 Adv Speak &amp; Pronunc</td>
<td>3</td>
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<tr>
<td>Additional graduation requirements*</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 10B Programming Fundamentals I</td>
<td>3</td>
</tr>
<tr>
<td>BSEN 76 Bus and Tech Report Writing</td>
<td>3</td>
</tr>
<tr>
<td>MATH 75 Math Anal for Bus</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 2 Manag Acct</td>
<td>4</td>
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<tr>
<td>Additional graduation requirements*</td>
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**Third Semester**

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<tr>
<th>Course</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CIS 110C Programming Fundamentals II</td>
<td>3</td>
</tr>
<tr>
<td>CIS 123 Comp Arch with Assembly Lang</td>
<td>3</td>
</tr>
<tr>
<td>Additional graduation requirements*</td>
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</tbody>
</table>

**Fourth Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 134A Client-based Database</td>
<td>3</td>
</tr>
<tr>
<td>or CIS 134B Network Databases</td>
<td></td>
</tr>
<tr>
<td>or CIS 101A Intro Visual Basic</td>
<td>3</td>
</tr>
<tr>
<td>CIS 136 Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Additional graduation requirements*</td>
<td></td>
</tr>
</tbody>
</table>

*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 CCSI.

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:

<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>or CIS 104 Microcomputer Hdw</td>
<td></td>
</tr>
<tr>
<td>or CIS 167 Intro to UNIX Operating System</td>
<td>3</td>
</tr>
<tr>
<td>CIS 136 Systems Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Requirements for the C++ Programming Option:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 110A Intro to Programming</td>
<td>3</td>
</tr>
<tr>
<td>CIS 110B Programming Fundamentals I</td>
<td>3</td>
</tr>
<tr>
<td>CIS 110C Programming Fundamentals II</td>
<td>3</td>
</tr>
<tr>
<td>CIS 123 Computer Arch with Assembly</td>
<td></td>
</tr>
<tr>
<td>or CIS 134B Network Databases</td>
<td></td>
</tr>
<tr>
<td>or CIS 142 Windows Programming</td>
<td>3</td>
</tr>
<tr>
<td>or CIS 144 Java Programming</td>
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</tbody>
</table>

Additional Requirements for Visual Basic with Database Option:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 134A Client-based Database</td>
<td>3</td>
</tr>
<tr>
<td>CIS 134B Network Databases</td>
<td>3</td>
</tr>
<tr>
<td>CIS 101A Intro to Visual Basic</td>
<td>3</td>
</tr>
<tr>
<td>CIS 101B Visual Basic with Database</td>
<td>3</td>
</tr>
</tbody>
</table>

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>
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</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>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 167 Intro to UNIX Operating System</td>
<td>3</td>
</tr>
</tbody>
</table>

Client Operating System

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

Hardware

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 104 Microcomputer Hdw</td>
<td>3</td>
</tr>
</tbody>
</table>

Local Area Networking

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

Electives

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

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 Hdw</td>
<td>3</td>
</tr>
<tr>
<td>CIS 104A Microcomputer Hdw Adv</td>
<td>3</td>
</tr>
<tr>
<td>CIS 105 Help Desk Operations</td>
<td>2</td>
</tr>
<tr>
<td>CIS 131 Local Area Networks</td>
<td>3</td>
</tr>
<tr>
<td>CIS 134A Client-based Database</td>
<td>3</td>
</tr>
<tr>
<td>CIS 135A Internet</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>
</tr>
</tbody>
</table>

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 a 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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**Intro to Unix**
CIS 167 Intro to UNIX Operating System 3

**System Administration**
CIS 169 UNIX System Admin 3

**Beginning Programming**
CIS 110A Intro to Programming 3

**Intermediate Programming**
CIS 110B Programming Fundamentals I 3
CIS 118 Prog in C 3
CIS 167P Perl Programming 3

**Internet**
CIS 135A Internet 3

**Electives**
CIS 131 Local Area Networks 3
CIS 132T TCP/IP 2
CIS 134B Network Databases 3
CIS 170 UNIX Systems Programming 3

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**Computer and Information Science**

**Announcement of Courses**

**CREDIT, DEGREE APPLICABLE COURSES:**

**CIS 100M. Introduction to Computers Using Macintosh (3)**
Lec-3, lab-3  CR/NC 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/NC 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/NC 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/NC avail.
Advis: 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 trouble shooting 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 105. Help Desk Operations (2)**
Lec-2, conf-1, lab-2
Prereq.: CIS 104A
Advis: CIS 131
An overview of the processes and procedures associated with operating a technical support center or help desk call center, with particular emphasis on technologies which can be employed to facilitate the work and to generate statistics. Course includes extensive simulated and hands-on experience. CSU
CIS 110A. Introduction to Programming (3)
Lec-3, conf-1, lab-3
Advised: 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 Fundamentals I (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

CIS 110C Programming Fundamentals II (3)
Lec-3, conf-1, lab-3
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 data types. CSU/UC

CIS 111. Programming, BASIC (3)
Lec-3, conf-1, lab-3
Advised: 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/CAN

CIS 112. Programming, FORTRAN (3)
Lec-3, conf-1, lab-3
Advised: 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/CAN

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
Advised: CIS 135A
Use of computers to communicate with other computers. Emphasis on the hardware and software needed to perform computer communication such as: modems, multiplexers, 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 smarth modems, write script files, and use communication software to access the CCSF network, BBSs, 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
Advised: CIS 165
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
Advised: 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
Adviser: 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/inking programs, presentation programs, and desktop publishing programs, as well as hardware such as scanners and digital cameras. Simple graphics programming. CSU

CIS 134A. Client-based Database (3)
Lec-3, lab-3
Adviser: 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 multiuser database systems running on networked computers using server-based software. CSU

CIS 135A. Internet (3)
Lec-3, lab-3
Repeat: max. 6 units
CR/NC avail.
Methods of using the Internet. Using tools for accessing Internet services such as electronic mail, Newsgroups, telnet, remote computers 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
Prereq.: CIS 135A
Repeat: max. 6 units
CR/NC avail.
Access options available to the Internet. Use of Internet tools to make information available to outside users. HTML programming to make home pages for use with WWW browsers, including use of forms and CGI. Comparison of newsgroups. Techniques of newsgrouping including use of threads, kill files, downloading, posting, and remailing. Methods of handling sound, video, and graphic files. E-mail MIME formats: encryption using PGP. Real-time Internet communication including talk, irc, and videoconferences. Management of List-servers. 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
Adviser: CIS 100P or 165 and MATH 140
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 109
Adviser: CIS 141A
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
CR/NC avail.
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 Graphical User Interfaces (GUI) for computer systems, using Microsoft Windows. Fundamentals of computer management through use of a GUI. Practice in setting up the interface and managing programs and data. Comparison of several graphical user interfaces. CSU
CIS 167. Introduction to the UNIX Operating System (3)
Lec-3, lab-3
Advisory: 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 on 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

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
Prereq.: CIS 167 and 118 or 110B
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 IDS† 120, or demonstration of exit skills
Advisory: 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. 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. 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. Programming using advanced data structures, including multidimensional arrays and records. CSU

CIS 198A-198B-198C. Internship and Work Experience (1-2-3)
Work-5, 10, 15, conf-2
Prereq.: CIS 104A or 10B or 101 or 134A or 134B or 135B or 136 or 101B 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 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

CIS 332. Advanced Routing and Switching (2)
Lec-2, conf-1, lab-2
Prereq.: CIS 331
Development of knowledge and skills to configure advanced routing protocols, Local Area Networks (LANs), and LAN switching. Design and management of advanced networks. Third course in preparation for Cisco CCNA certification. CSU

CIS 333. Wide Area Networks and Project Based Learning (2)
Lec-2, conf-1, lab-2
Prereq.: CIS 332
Development of knowledge and skills to design and configure advanced wide area network (WAN) projects using Cisco IOS command set. Fourth course in preparation for Cisco CCNA certification examination. CSU

Consumer Arts and Sciences
Announcement of Courses

NOTE: Some courses include a materials fee.

CREDIT, DEGREE APPLICABLE COURSES:

CASC 15A. Clothing Study I (3)
Lec-2, lab-3
A beginning course utilizing basic principles and concepts in the clothing field. Emphasis on skills and techniques, pattern analysis, 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
Elements of garment construction using advanced clothing construction methods and techniques; pattern alterations, couturier patterns and custom finishes. Techniques for sewing hard-to-handle fabrics and stretch knits. Use of serger for construction of garments. Students will construct a garment utilizing techniques from class. CSU

CASC 19. Food and Culture (2)
Lec-1, lab-3
Repeat: max. 4 units
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 modifications. CSU

CASC 22. Textile Analysis (3)
Lec-3
Analysis of natural and man-made fibers, fabric construction and special finishes; characteristics that determine use, performance and care; innovations in the textile field, dyes, printing processes and fabric tests. 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
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

CIS 332. Advanced Routing and Switching (2)
Lec-2, conf-1, lab-2
Prereq.: CIS 331
Development of knowledge and skills to configure advanced routing protocols, Local Area Networks (LANs), and LAN switching. Design and management of advanced networks. Third course in preparation for Cisco CCNA certification. CSU

CIS 333. Wide Area Networks and Project Based Learning (2)
Lec-2, conf-1, lab-2
Prereq.: CIS 332
Development of knowledge and skills to design and configure advanced wide area network (WAN) projects using Cisco IOS command set. Fourth course in preparation for Cisco CCNA certification examination. CSU

Consumer Arts and Sciences
Announcement of Courses

NOTE: Some courses include a materials fee.

CREDIT, DEGREE APPLICABLE COURSES:

CASC 15A. Clothing Study I (3)
Lec-2, lab-3
A beginning course utilizing basic principles and concepts in the clothing field. Emphasis on skills and techniques, pattern analysis, 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
Elements of garment construction using advanced clothing construction methods and techniques; pattern alterations, couturier patterns and custom finishes. Techniques for sewing hard-to-handle fabrics and stretch knits. Use of serger for construction of garments. Students will construct a garment utilizing techniques from class. CSU

CASC 19. Food and Culture (2)
Lec-1, lab-3
Repeat: max. 4 units
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-3
Analysis of natural and man-made fibers, fabric construction and special finishes; characteristics that determine use, performance and care; innovations in the textile field, dyes, printing processes and fabric tests. 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
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
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, field trips
Prereq.: CASC 25A
Repeat: max. 4 units
Introduction to designing woven textiles using advanced weave structures. Students learn to select yarns, weaves, and equipment and design original textiles. CSU

CASC 26A. Flat Pattern Design (3)
Lec-2, lab-3
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, field trips
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
Repeat: max. 6 units
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. Pattern Grading and Marker Making (2)
Lec-1, lab-3
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, field trips
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. 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, field trips
Basic design principles examined as they apply to clothing for women, men, and children. Includes design modifications as required by fabric and figure characteristics. Relates design problems to current aesthetic trends and use of the garment. 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. 6 units
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, appliqué, beading, felting and reconstructed fabric making. Pattern designing is emphasized. CSU

CASC 71. Apparel Art (2)
Lec-2, field trips
Class will present design possibilities in techniques including: weaving, quilting, fabric painting, appliqué, beading, felting and reconstructed fabric making. Pattern designing is 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 (70 hrs)
Advised: 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)
Advised: 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 (70 hrs)
Integrating traditional Aubusson tapestry techniques with contemporary techniques and materials. All levels: beginning - samplers; intermediate - cartoons; advanced - approved, pre-planned pieces.

CASC 6014. Fashion Sewing and Alteration 108 hrs)
Development of skills in clothing construction. Areas include tailoring, dressmaking, fitting, alterations. Students provide materials and supplies.

CASC 6025. Quiltmaking
Advised: ABE 2071
Develop/improve skills in sewing, design, pattern drafting, appliqué, 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, air-brushing, stenciling, blueprinting, marbling and sculpting. Pattern drafting for 3 dimensional objects: figures, animals, boxes, masks, headdresses and footwear. Emphasis on color and design.

CASC 6040. Interior Textiles (35 hrs)
Lab-2, field trips
Woven structures used in interior furnishings. Practice techniques of upholstery, drapery, rugs, bed coverings, wall hangings 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 (54 hrs)
All aspects of basic hat making, including sewn hats, framed hats and felt hats. Application of trims and embellishments included.

CASC 6052. Apparel Art Lab (35 hrs)

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.

CASC 9612. Draping/Design/Pattern Drafting
Methods and techniques of clothing construction used to meet students' individual design needs. Covers basic sewing and pattern drafting through composing test draping designs on manikins. Demonstrations of draping techniques that summarize the basics of garment assembly and finishing.

Consumer Education
Announcement of Curriculum

Nutrition Assistant Certificate

Admission Requirements. Admission to the program is based on the following:
1. Graduation from an accredited high school or have passed the G.E.D. test or have passed the California High School Proficiency examination.

2. Placement into ENGL 90 or completion of ESL 72 or 82 with a grade of C or higher.

3. Submission of a written application.

4. Completion of HOEC 98,* Introduction to Nutrition Assistant Program, with a grade of C or higher.

*All applicants to the program must enroll in HOEC 98 which is offered the first five weeks of the fall semester. Upon acceptance to the program, the student will enroll in the other courses which start the sixth week of the fall semester.

Note: If the number of students who meet criteria #4 exceeds maximum class size, admission will also be determined by the filing date of application on a first-come, first-serve basis.

**Requirements for Certificate Completion.** The certificate requires completion of 16 units. Required courses must be completed with a final grade of C or higher and a credit grade in the field experience.

**Sequence of Required Completion**

<table>
<thead>
<tr>
<th>First Semester (Fall)</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOEC 99 Nutrition for Paraprofessionals (or equivalent basic nutrition course)</td>
<td>3</td>
</tr>
<tr>
<td>HOEC 100 Foodways, Nutrition and Health</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester (Spring)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HOEC 104 Life Span Nutrition and Assessment</td>
<td>4</td>
</tr>
<tr>
<td>HOEC 105 Clinical and Community Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>HOEC 106 Nutrition Assistant Field Experience</td>
<td>2</td>
</tr>
</tbody>
</table>

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**Announcement of Courses**

**CREDIT, DEGREE APPLICABLE COURSES:**

**HOEC 98. Introduction to Nutrition Assistant Program (1)**
Lec-3 (5 wks)
Focuses on the scope and nature of work as a nutrition paraprofessional in public health settings and the development of practical skills in critical thinking, problem-solving, organization, and time management. Guest lecturers from various professionals in the nutrition/health field will be a part of the course. This course is a prerequisite for acceptance to the Nutrition Assistant Program. CSU

**HOEC 99. Nutrition for Paraprofessionals (3)**
Lec-4 (12 wks)
Prereq.: Acceptance into certificate program
Intermediate level nutrition course intended for students planning to work as paraprofessionals in nutrition and/or health. The course uses an application oriented approach to the study of nutrients and health with less emphasis on biochemistry. CSU

**HOEC 100. Foodways, Nutrition and Health (3)**
Lec-4.5 (12 wks)
Prereq.: Acceptance into certificate program
A study of the cultural and socioeconomic influences on the food habits of different ethnic groups in the United States and their diet-related health risks and implications. Cross-cultural counseling strategies, food service sanitation and safety, and optimal use of the food dollar. CSU

**HOEC 104. Life Span Nutrition and Assessment (4)**
Lec-5 (12 wks)
Prereq.: HOEC 99
A study of the nutritional needs and special nutrition issues common at different periods of the life cycle from conception, infancy, childhood, adolescence, young, middle and late adulthood, including pregnancy and lactation. Also covers nutrition screening parameters to assess nutrition risk for each age group. CSU

**HOEC 105. Clinical and Community Nutrition (4)**
Lec-5 (12 wks)
Prereq.: HOEC 99
Focuses on the principles of medical nutrition therapy and nutrition application in public health. Intended for those planning careers in the field of nutrition. CSU

**HOEC 106. Nutrition Assistant Field Experience (2)**
Conf-1, work-16 (10 wks)
Prereq.: Enrollment in the Nutrition Assistant Program and maintenance of a satisfactory (2.0 or Higher) academic performance
The course provides relevant experience at various public health and nutrition care settings like Women, Infants and Children (WIC) Supplemental Nutrition Programs, Head Start, senior nutrition programs, and hospitals to learn and practice entry-level job-specific skills and competencies in the delivery of nutrition care and services. CSU

**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.

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**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/chairside 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 by 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 C-352, City College of San Francisco, 50 Phelan Avenue, San Francisco, California 94112.

**Consideration for Admission to the Curriculum.** The curriculum in Dental Assisting, offered to new applicants in the fall semester only, is open to all interested students who fulfill the following admission requirements:

1. Be in good physical and mental health.
2. Eligibility for admission to CCSF. (See in this catalog the Admission to College - Admission Open to High School Graduates and Others).
3. Complete the Program’s application and health history forms and submit to the Dental Assisting Program’s office.
4. For the two year program, the student must have completed ENGL 90 or ESL 72 or equivalent or higher. In addition, students must satisfy the keyboard requirement of 45 wpm. This requirement may be met by successfully completing a computer or typing class, or a typing test can be administrated at the Program’s office. The course for the typing skill does not need to be met at college level. Proof of successful completion of a computer or typing class will be acceptable on any level.

**Advanced Placement.** Applicants who have been admitted to the curriculum and who have previous education or experience in dental assisting may apply for credit and advanced placement in the curriculum. However, such applicants should first have completed the science, English and keyboard requirements.

**Bases for Disqualification.** Students who receive a final grade lower than C in any dental assisting course will be disqualified from continuing in the curriculum. Students who receive a final grade lower than C will be permitted to repeat a course only once and must achieve a grade of C at all evaluation periods. Students who repeat a course and who do not achieve a grade of C at an evaluation period will be disqualified from continuing in the curriculum. Students may also be disqualified for other reasons consistent with College policy.

**Award of Achievement.** Students who have satisfied the requirements for graduation from the College and who have completed the curriculum with an average final grade of C plus (2.50 grade-point average) or higher receive the Award of Achievement in Dental Assisting.

**Eligibility for the Certification Examination and Licensure Examinations.** Graduates who receive an Award of Achievement or a Certificate of Completion are eligible to take the Certification Examination given by the Dental Assisting National Board and the Licensure Examinations to become a Registered Dental Assistant given by the Board of Dental Examiners.

**Courses Required for the Award of Achievement in Dental Assisting**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Units</th>
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<tbody>
<tr>
<td>BIO 9+ Hum Bio</td>
<td>4</td>
</tr>
<tr>
<td>DENT 51 Applied Dental Science I</td>
<td>4</td>
</tr>
<tr>
<td>DENT 55A Dent Roentgenography</td>
<td>2</td>
</tr>
<tr>
<td>DENT 62 Dent Assisting in Practice</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 90 or ESL 72 Basic Comp or Inter Comp</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 1 or 26 Gen Psychology or Hum Relation</td>
<td>3</td>
</tr>
<tr>
<td>Additional graduation requirements</td>
<td></td>
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<tr>
<td>† ZOOL 10, ANAT 14 or 25, or PHYS 12 may be substituted for BIO 9.</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th></th>
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<tbody>
<tr>
<td>WDPR 79+ Speed Building; Keyboarding</td>
<td>1</td>
</tr>
<tr>
<td>DENT 55B Dental Roentgenography</td>
<td>2</td>
</tr>
<tr>
<td>DENT 57 Dental Office Management</td>
<td>3</td>
</tr>
<tr>
<td>Additional graduation requirements</td>
<td></td>
</tr>
<tr>
<td>† Computer data entry courses may be substituted for WDPR 79.</td>
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<table>
<thead>
<tr>
<th>Third Semester</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>DENT 52 Dental Materials and Procedures</td>
<td>3</td>
</tr>
<tr>
<td>DENT 53 Intro to Chairside Assist</td>
<td>3</td>
</tr>
<tr>
<td>Additional graduation requirements</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Fourth Semester</th>
<th></th>
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<tbody>
<tr>
<td>DENT 54 Appl Dental Sciences</td>
<td>2</td>
</tr>
<tr>
<td>DENT 67 Advanced Dental Procedures</td>
<td>4</td>
</tr>
<tr>
<td>DENT 70 Clinical Chairside Assist</td>
<td>7</td>
</tr>
<tr>
<td>DENT 110A Coronal Polish</td>
<td>0.5</td>
</tr>
<tr>
<td>Additional graduation requirements</td>
<td></td>
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</tbody>
</table>

**Certificate Curriculum**

The program of study for the Certificate of Completion in Dental Assisting is designed to prepare students to take the licensing examination to be a Registered Dental Assistant as administered by the California State Board of Dental Examiners and also to take the national certification examination to be a Certified Dental Assistant as administered by the Dental Assisting National Board. This course can be completed
in two semesters (after completing prerequisites). Accreditation. The curriculum is accredited by the Commission on Accreditation of the American Dental

Association and is approved by the Board of Dental Examiners, Department of Consumer Affairs, State of California.

Information Regarding Admission. Requests concerning admission should be addressed as follows: Department Head, Dental Assisting, Box C-352, City College of San Francisco, 50 Phelan Avenue, San Francisco, California 94112.

Consideration for Admission to the Curriculum. The curriculum in Dental Assisting is open to all interested students who fulfill the following requirements:

1. Be in good physical and mental health.

2. Eligibility for admission to CCSF. (See in this catalog the Admission to College - Admission Open to High School Graduates and Others).

3. File with the Office of Admissions and Records a completed application for admission to City College (for dates, see in this catalog the “Calendar of Instruction”). Students must also complete the Program’s application and health history forms and submit to the Dental Assisting Program’s office.

4. For the one year program, the student must have completed ENGL 90 or ESL 72 or equivalent or higher. In addition, students must satisfy the keyboard requirement of 45 wpm. This requirement may be met by successfully completing a computer or typing class, or a typing test can be administered at the Program’s office. The course for the typing skill does not need to be met at college level. Proof of successful completion of a computer or typing class will be acceptable on any level.

Advanced Placement. Applicants who have been admitted to the curriculum and who have previous education or experience in dental assisting may apply for credit and advanced placement in the curriculum. However, such applicants should first have completed the science, English and keyboard requirements.

Basis for Disqualification. Students who receive a final grade lower than C in any dental assisting course will be disqualified from continuing in the curriculum. Students who receive a final grade lower than C will be permitted to repeat a course only once and must achieve a grade of C at all evaluation periods. Students who repeat a course and who do not achieve a grade of C at an evaluation period will be disqualified from continuing in the curriculum. Students may also be disqualified for other reasons consistent with College policy.

Eligibility for the Certification Examination and Licensure Examinations. Graduates who receive an Award of Achievement or a Certificate of Completion are eligible to take the Certification Examination given by the Dental Assisting National Board and the Licensure Examinations to become a Registered Dental Assistant given by the Board of Dental Examiners.

Requirements for the Certificate of Completion. Students may obtain the Certificate of Completion in Dental Assisting by completing the following courses with an average final grade of C (2.00 grade-point average) or higher:

First Semester
Course | Units
------ | -----
DENT 51 Appl Dental Sciences I | 4
DENT 52 Dental Materials and Procedures | 3
DENT 53 Intro to Chairside Assisting | 3
DENT 55A Dent Roentgenography | 2
DENT 62 The Dental Assistant in Practice | 3

Second Semester
DENT 54 Appl Dental Sciences II | 2
DENT 55B Dent Roentgenography | 2
DENT 57 Dent Office Management | 3
DENT 67 Adv Dental Procedures | 4
DENT 70 Clinical Chairside Assist | 7
DENT 110A Coronal Polish | 0.5

Credit Toward Graduation. All credit that students earn in obtaining the Certificate of Completion in Dental Assisting may also be applied toward satisfaction of the requirements for graduation from the College.

Dental Assisting
Announcement of Courses

CREDIT, DEGREE APPLICABLE COURSES:

DENT 51. Applied Dental Science I (4)
Lec-3, lab-3
Coreq.: DENT 55A and 62
Dental terminology, anatomy and physiology; mechanisms for transmitting disease and controlling/decreasing resistance to infection, oral embryology, histology and pathology, tooth morphology. Preliminary oral examination; charting conditions of the hard tissues; taking and recording vital signs and other tasks assigned to the dental assistant. Methods and techniques of sterilization and disinfection. Infection control procedures and infectious disease process in the dental office. CSU

DENT 52. Dental Materials and Procedures (3)
Lec-2, lab-3
Prereq.: Completion/concurrent enrollment in DENT 51, 52, 53, 55A; BIO 9; ESL 72 or ENGL 96
The study of the materials and their safe handling that are employed in dentistry for the fabrication of dental appliances and tooth restorations and the manipulation of these materials. Introduction to intra-oral tasks delegated to the qualified registered dental assistant, which are related to operative dentistry such as bases, liners and cementation. CSU
DENT 53. Introduction to Chairside Assisting (3)
Lec-2, lab-3
Prereq.: DENT 51, 55A and 62 (or completed)
Coreq.: DENT 52
Instruction in the role of the chairside assistant, preparing the patient for dental treatment, positioning of the patient, operator and assistant for four-handed dentistry, preparation and placement of topical anesthetic agents, selection/preparation of local anesthetic agents, placement and removal of rubber dams, oral evacuation and retraction; instrument identification and grasps/transfers/triplex syringe usage, handpiece and equipment maintenance, placement and removal of matrix retainers, placement of sedative restorations amalgam and composite tray set-ups. Fixed crown bridge procedures and fabrication of aluminum and acrylic temporary crowns and endodontic instruments and procedures. CSU

DENT 54. Applied Dental Science II (2)
Lec-2
Prereq.: DENT 53, 55A, 62, and BIO 9 or demonstration of BIO 9 exit skills
Coreq.: DENT 55B, 67, and 70
Review of microbiology, the mechanisms for transmitting disease, and controlling and decreasing resistance to infection. The rationale of preventive dentistry and practiced application of the necessary steps for a preventive/nutrition therapist, including use of fluorides and tooth whitening products, the involvement of oral pathological conditions as related to the hard and soft tissues as well as developing the sources and effects of dental therapies and how they relate to dental office emergencies. Description and use of drugs and their use in dentistry. CSU

DENT 55A. Dental Roentgenography (2)
Lec-1, lab-3
Coreq.: DENT 51 and 62 (or completed)
Instruction in the basic principles of radiography, history, protection and safety guidelines. Physics and biological effects of radiation, for the patient’s and operator’s protection and comfort. Types of films, exposure and manual processing techniques on manikins. Composition and preparation of solutions. The relationship of dental anatomy and facial structures to the exposure and mounting relationship of dental anatomy and facial structures to the exposure and mounting of films. CSU

DENT 55B. Dental Roentgenography (2)
Lec-1, lab-3, field trips
Prereq.: DENT 55A
Instruction in the advanced techniques of dental radiography, anatomical landmarks, dental anatomy pertaining to dental radiography, exposure and processing faults. Emphasis is on evaluation of the quality of the films both intra and extra oral. Experiences in exposing full mouth radiographs for diagnosis by dentists. Processing and maintaining automatic processors. Knowledge of panoramic techniques and other related radiographic equipment. CSU

DENT 57. Dental Office Management (3)
Lec-3
Prereq.: DENT 51, 55A, and 62; ENGL 90 or ESL 72 or eligible for ENGL 90 or 1A
Coreq.: DENT 55B
Instruction in the non-clinical functions which dental auxiliaries are required to perform with emphasis on financial arrangements, collection techniques, insurance processing and maintenance of office records, account receivable transactions, office mail, inventory, purchasing, accounts payable, payroll, disbursements, tax records, marketing and group practice. Use of computers to perform basic dental office management. CSU

DENT 62. The Dental Assistant in Practice (3) fa
Lec-2, lab-3, field trips
Coreq.: DENT 51 and 55A
The dental health team, ethics and jurisprudence, history of dentistry, home care instruction including bleaching, applied psychology, communication skills; verbal and written (telephone/fax/computer) communication, the special patient, appointment control, recall systems and the administrative assistant. CSU

DENT 67. Advanced Dental Procedures (4)
Lec-3, lab-3
Prereq.: DENT 51, 52, 53, 55A, and 62
Coreq.: DENT 70
Instruction in the specialties of dentistry including advance endodontics, periodontics, orthodontics, oral surgery, removable prostodontics and pediatric dentistry as well as the ammamentarium required in each specialty. Development of preclinical skills in the extended functions which are required of the Registered Dental Assistant. Students are required to meet standards of competency for each required task including coronal polishing and ultrasonic removal of cement from orthodontic bands. Mannequins and patients will be used in instruction. CSU

DENT 70. Clinical Chairside Assisting (7)
Lec-1.5, lab-18
CR/NC only
Prereq.: Current Healthcare-Provider CPR certification and completion/concurrent enrollment in DENT 54, 55B, 57 and 67
Clinical instruction and practice in four-handed procedures. Emphasis on general and specialty dentistry (oral surgery, periodontics, endodontics, orthodontics, prosthodontics) and the intra-oral tasks assigned to the Registered Dental Assistant. Development of professional attitude (ethics/jurisprudence) in dental assisting. Building skills in the use of dental materials and equipment. Evaluation of clinical experience, career placement opportunities, and skills building in communication and the taking of the Registered Dental Assisting Practical Examination. CSU

DENT 110A. Coronal Polish (0.5)
Lec-6, conf-8 (14 total hrs)
Repeat: max. 1.5 units
CR/NC avail.
Designed and approved to meet the California Board of Dental Examiners Sticker for Coronal Polish. Includes lecture and clinical hours. Techniques for removal of the clinical crown the following: pellicle, plaque, and extrinsic stain. Students will be required to provide their own patients and follow program's infection control, sterilization, and infection. CSU
Dental-Laboratory Technology

Announcement of Curricula

Certificate Curriculum
The curriculum in Dental-Laboratory Technology, a two-semester course of study, is designed to train students to do the kinds of dental work not performed directly on patients. This includes making full and partial dentures, metal inlays, crowns, bridges, and porcelain bonded to metal restorations. Additional semesters may be required to complete the graduation requirements needed to graduate from the College with a degree.

Approval. The curriculum is approved by and offered in cooperation with the California Dental Laboratory Association.

Admission. Students are admitted to the curriculum in August. Enrollment is limited, therefore, to be considered for admission, those desiring to enter the curriculum must submit an application to the Dental Laboratory Technology Office. To receive an application you may call 239-3625, send a written request, or ask for an application at the Dental Laboratory Technology Office, Cloud Hall, Room 364. Requests should be submitted by April 15 for the fall semester, however applications may be accepted up to the middle of August.

Continuing in the Program. Only students who receive a passing grade in Dental-Laboratory Technology 71A, 72B, or 73A may continue into the related second semester courses. Dental Technicians with experience, dental students or foreign dentists with a satisfactory score on the DTL Challenge Examination may be allowed in second semester classes if space permits.

Certificate of Completion and Associate in Science Degree. Students who complete four units of general education and complete the curriculum with an average final grade of C (2.00 grade-point average) or higher will receive the Certificate of Completion in Dental-Laboratory Technology. Students who wish to earn an Associate in Science degree must complete the general education requirements for graduation from the College. Students who satisfy these requirements and complete the Curriculum receive the degree of Associate in Science and the Certificate of Completion in Dental Laboratory Technology. Such students should consult with a College counselor.

Employment. Graduates who receive the Certificate of Completion have opportunities for employment, in commercial dental laboratories, in dentists' laboratories, and with federal and state agencies. Graduates may also qualify for entry level employment as sales representatives of companies manufacturing or selling dental supplies; or, after obtaining the necessary experience, establish their own laboratory business.

National Certification. Graduates may, after four years of employment in a dental laboratory, take the Certified Dental Technician written and practical examinations given by the national Board for Certification, Alexandria, Virginia.

Purchase of Supplies and Equipment. At the beginning of the first semester, students are required to purchase instruments and equipment used in all three first semester dental-
laboratory courses. The cost of the kit is approximately $200. The kit may be purchased in part or in whole from local dental equipment suppliers within the first week of the semester. The three required textbooks cost about $140.

Courses Required for the Certificate of Completion in Dental-Laboratory Technology

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLT 71A Complete Dentures</td>
<td>4</td>
</tr>
<tr>
<td>DLT 72B Fixed Prosthodontics</td>
<td>4</td>
</tr>
<tr>
<td>DLT 73A Morphology</td>
<td>2</td>
</tr>
<tr>
<td>Additional certificate requirements</td>
<td>2</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLT 72A Partial Dentures</td>
<td>4</td>
</tr>
<tr>
<td>DLT 73B Adv Morphology</td>
<td>2</td>
</tr>
<tr>
<td>DLT 76 Dental Ceramics</td>
<td>4</td>
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<td>Additional certificate requirements</td>
<td>2</td>
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</tbody>
</table>

Dental-Laboratory Technology

Announcement of Courses

CREDIT, DEGREE APPLICABLE COURSES:

DLT 71A. Complete Dentures (4)
Lec-2, lab-6
Prereq.: Admission to the curriculum in DLT
Coreq.: DLT 73A and 72B
Instruction in fabricating complete dentures, occlusion rims, and custom trays. Study of dental terminology, oral anatomy and dental materials used in complete denture fabrication. Development of competency in the use of hand and power instruments and equipment used in the process of fabricating complete dentures. CSU

DLT 72A. Partial Dentures (4)
Lec-2, lab-6
Prereq.: DLT 71A
Theory and practical techniques used in the construction of removable partial dentures, including terminology, survey and design, waxing, casting, polishing the framework, and setting up and processing artificial teeth on the frameworks. CSU

DLT 72B. Fixed Prosthodontics (4)
Lec-2, lab-6
Prereq.: Admission to the curriculum in DLT
Coreq.: DLT 71A and 73A
Theory and practical techniques used in the construction of removable dies, inlays, crowns and bridges, including terminology, functional occlusion, esthetics, abutments, pontics, casting metals, casting techniques and soldering. CSU

DLT 73A. Morphology (2)
Lec-1, lab-3
Prereq.: Admission to the curriculum in DLT
Coreq.: DLT 71A and 72B
Tooth anatomy and occlusion. Subjects include: dental materials, physical properties, dental terminology, fabricating removable dies, drawings, and wax carvings of teeth. CSU
DLT 73B. Advanced Morphology (2)
Lec-1, lab-3
Prereq.: DLT 73A
A study of the techniques necessary for the fabrication of cast fixed restorations including tooth preparations, impressions, dies, waxing, carving, investing, casting, polishing cast restorations, pinct design and soldering; advanced study of occlusal concepts and dental ethics. CSU

DLT 76. Dental Ceramics (4)
Lec-2, lab-6
Prereq.: DLT 72B
Theory and practical techniques for the construction of removable dies, metal copings, porcelain bonded to metal crowns, porcelain margin crowns, and a waxed P.B.M. bridge. CSU

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Diagnostic Medical Imaging

(Formerly Diagnostic Radiologic Technology)

Announcement of Curricula

Degree Curriculum
The curriculum in Diagnostic Medical Imaging is approved by the Joint Review Committee on Education in Radiologic Technology, located at 20 N. Wacker Drive, Suite 900, Chicago, IL 60606-2901, Tel: (312) 704-5300, and by the California Department of Health, and is offered in affiliation with several San Francisco hospital radiology departments.

Consideration for Admission to the Curriculum.
To be considered for admission to the curriculum, applicants must—

1. Have completed with final grades of C or higher MATH 840 (Elementary Algebra) and CHEM 30/1, 32 or 40. Documented algebra classes completed at secondary school levels, may be credited by demonstration of a score on the CCSF Algebra placement test indicating eligibility for MATH 90 or 860.

2. Have at least a 2.0 cumulative grade point average in college work previously completed.

3. Be in good physical and mental health.

4. File with the Office of Admissions and Records a completed application for admission to City College (for dates, see in this catalog the “Calendar of Instruction”).

5. Take the City College of San Francisco placement tests on the date or dates stated in the notice mailed by the College. All applicants must take the City College placement tests (mathematics, English).

6. Submit an application to the Radiologic Technology Office. Contact Radiology Department for filing deadline dates. (Applications are available in the Radiologic Technology Department Office, Cloud Hall, Room 239.)

Applicants who satisfy the preceding requirements will qualify to participate in an orientation session conducted by the faculty of the Diagnostic Medical Imaging Program to review the requirements and expectations of the program.

Coeducational Enrollment. Enrollment is open to both men and women.

Health Clearance Requirements. In addition to academic requirements and orientation, enrollment in the Diagnostic Medical Imaging Program is subject to evidence of immunizations per the San Francisco Health Department. The forms are available from the Radiologic Technology office.

Instruction in the Major. The course of study includes instruction in radiologic theory and techniques, pathology, patient care, radiation protection, anatomy, physics and physiology. The curriculum is 30 months in length, including two academic years, with a summer session between the first and second semesters, and ending with a clinical internship of 32 weeks. Clinical education in diagnostic medical imaging is taught in the radiology departments of the hospitals affiliated with the College in offering the program. Members of the professional and technical staffs of these departments serve as instructors.

Upon satisfactory completion of the clinical internship in an affiliate hospital, the student is awarded the Associate in Science degree.

Scholarship Requirements. Students who receive a final grade lower than C (75%) in any of the required courses in radiologic technology, are required to repeat the course before proceeding to the next course in sequence. Students whose cumulative grade point average drops below 2.0, will not be allowed to proceed to the next course(s) until the GPA has been raised to 2.0 or higher.

Basis for Disqualification. Students who receive a final grade lower than C (75%) will be allowed to repeat that Diagnostic Medical Imaging (DMI) course. Any further courses with grades lower than C (75%) will be cause for dismissal from the Diagnostic Medical Imaging Program. Students may be suspended or dismissed for excessive absences either on campus or at the clinical affiliate, according to the attendance policy, or for other reasons consistent with College policy, as set forth in the Catalogue under General Information.

Readmission of Students Disqualified Because of Unsatisfactory Scholarship. Students who have been disqualified from continuing in the curriculum because they received a final grade lower than C and who desire to be re-admitted must submit a new application to the Radiology Department Review Committee. As part of the procedure, the Committee will meet with the applicant prior to making a decision. The Committee will base its recommendations on the current policy of the Diagnostic Medical Imaging Program, which is available from the Department office.

Associate in Science Degree and Award of Achievement. The course of study is designed so that students may satisfy the requirements for graduation from the College. Students who satisfy these requirements, complete the required courses in the curriculum, including the 32-week clinical internship, with final grades of C or higher, will receive the Award of Achievement in Diagnostic Medical Imaging.

State and National Certification. Graduates of the Option in Diagnostic Medical Imaging are eligible to take the certification examination administered by the California Department of
Health. State certification is required for employment in California. Graduates are eligible for and are encouraged to take the certification examination given by the American Registry of Radiologic Technologists, a national certification board recognized by the Joint Review Committee for Education in Radiologic Technology. Many employers require national certification.

Purchase of Uniforms. Students are required to purchase the uniforms required in the courses in radiologic technology. The cost of uniforms is approximately $100.

Sequence of Courses. The following sequence of courses is for students starting in the fall. Sequence changes for students starting in the spring. Contact the Radiologic Technology office for further information.

Courses Required for the Award of Achievement in Diagnostic Medical Imaging

First Semester

Course                      Units
ANAT 25 Gen Human Anatomy   4
PHYC 10 Conceptual Phyc     3
PHYC 10L Conceptual Phyc Lab 1
DMI 49 Intro to Radiologic Technology 3
DMI 50A Intro to Med Radiography 3
RADL 52 Patient Care and Staff Relationships 2

Additional graduation requirements

Second Semester

DMI 50B Radiologic Phyc and Equip 2
DMI 51A Radiographic Anat and Position 4
DMI 51B Radiographic Exposure Factors 2
HLTH 14* CPR Adv First Aid Emerg Care 2
PSYC 1 or 26 Gen Psych or Human Relat 3

Additional graduation requirements

* This course is strongly recommended, but may be replaced by a current Adult/Pediatrics Red Cross CPR card. Evidence must be furnished to the Radiology Department office prior to the start of DMI 62.

Summer Session

DMI 62 (seven weeks) Clinical Educ in DMI 2

Third Semester

SPCH 11, 12 or 1A Intro to Pub Speak or Fundamentals of Oral Commun or Elements of Publ Speak 3
PHYS 12 Intro to Human Physio 4
DMI 55 Skull Radiography and Resrch Project 2
DMI 56 Pathology 2
DMI 63 Inter Imaging Proc 2
DMI 64 Clin Educ in DMI 2

Additional graduation requirements

Fourth Semester

ANAT 26 Sectional Anat 1
DMI 54 Vascular and Interven Proc 2
DMI 65 Adv Imaging Proc 2
DMI 66 Clinical Educ in DMI 2
RADL 70 Radiation Protection 2

Additional graduation requirements

Internship
DMI 68 Clinical Educ in DMI 4
DMI 69 Clinical Educ in DMI 4
DMI 100 Review of Radiologic Tech 1

Recommended electives: PHOT 51 and courses in keyboarding, computer science, and psychology

Diagnostic Medical Imaging
Announcement of Courses

CREDIT, DEGREE APPLICABLE COURSES:

DMI 49. Introduction to Radiologic Technology (3)
Lec-3, field trips
Open to all students who may be interested in a career in Radiologic Technology and required of students accepted into either the Diagnostic Medical Imaging or Radiation Oncology Technology programs.

History and discovery of uses of medical radiation; careers in radiology; educational preparation for those careers; function of health care units utilizing radiologic technology; associated imaging modalities of radiologic technology; medical ethics for radiologic technologists; sources of radiation; review of simple mathematics crucial for developing radiographic techniques; elementary principles of radiation protection; medical terminology; career advancement and mobility. CSU

DMI 50A. Introduction to Medical Radiography (3)
Lec-2, lab-3, field trips

Prereq.: Admission to the curriculum in Radiologic Technology; completion/concurrent enrollment in DMI 49 Introduction to radiological physics, film exposure and film processing. CSU

DMI 50B. Radiologic Physics and Equipment (2)
Lec-2, lab-2

Prereq.: PHYC 10 and 10l and completion/concurrent enrollment in DMI 50A
Physics as applied to radiography, fluoroscopy, and radiotherapy. X-ray circuits. The interaction of ionizing radiation with matter. Radiation protection. Equipment used in radiology. CSU

DMI 51A. Radiographic Anatomy and Positioning (4)
Lec-4, lab-3, field trips

Prereq.: ANAT 25, DMI 49 & 50A; RADL 52 and DMI 50B and completion/concurrent enrollment in 1B
Preliminary steps in radiography. Anatomy and positioning of extremities, thorax, vertebral column, pelvic and shoulder girdles, thoracic viscera, abdomen, gastrointestinal, biliary, and genitourinary tracts. CSU

DMI 51B. Radiographic Exposure Factors (2)
Lec-2, lab-1

Prereq.: Completion of first semester Diagnostic Medical Imaging courses; completion/concurrent enrollment in DMI 50B and 51A
Theoretical and practical application of exposure factors. Emphasis is placed on the students' ability to analyze the quality of a recorded image and to improve the image. Film critique of experiments and of the department's film file. CSU
DMI 54. Vascular and Interventional Procedures (2)
Lec-2
Prereq.: DMI 62, 63; completion/concurrent enrollment in DMI 64 or 66
Emphasis on vascular radiography (including cerebral angiography, abdominal angiography, thoracic aortography, lymphangiography, femoral arteriography, peripheral angiography), related equipment, patient care, interventional radiography, and trends of techniques and equipment in vascular radiography. CSU

DMI 55. Skull Radiography and Research Project (2)
Lec-2, field trips
Coreq.: DMI 62, 64, or 66
Anatomy of the head and facial bones, topical landmarks, radiographic positioning and technical factors, radiographic equipment and usage, pathological conditions, patient care, discussion of CT and MRI imaging of the head. Research/ writing project with presentation by each student on a radiographic topic. CSU

DMI 56. Pathology (2)
Lec-2
Coreq.: DMI 62, 64, 66, or RADL 83
Discussion and illustration of the normal variations and abnormal changes because of disease as manifested by X-rays. Description of the modifications of standard and special techniques necessary to obtain adequate diagnostic X-ray studies of the various diseases. CSU

DMI 62. Clinical Education in Diagnostic Medical Imaging (2) sp and su
Conf-16 sp (7 wks at 40 hrs su)
Prereq.: ANAT 25; DMI 49, 50A, 50B, 51A, 51B, and RADL 52
Practical experience in the radiology department of a hospital. Students must perform all radiographic goals as stated in the course objectives. CSU

DMI 63. Intermediate Imaging Procedures (2)
Lec-2, lab-1
Coreq.: DMI 62, 64, or 66
Basic theories underlying many diagnostic imaging procedures. Relationship of clinical indications, special precautions, quality assurance, equipment, and positioning. Introduction to the use of computers in radiology. CSU

DMI 64. Clinical Education in Diagnostic Medical Imaging (2) fa and su
Conf-16 fa (7 wks at 40 hrs su)
Prereq.: DMI 62
A continuation of the clinical experience. Students must perform all radiographic goals as stated in the course objectives. CSU

DMI 65. Advanced Imaging Procedures (2)
Lec-2
Coreq.: Clinical Assignment
Principles of computed tomography and magnetic resonance imaging, radiography of infants and children (immobilization techniques and alleviation of fear); radiography of the female reproductive system; dynamic imaging. CSU

DMI 66. Clinical Education in Diagnostic Medical Imaging (2)
Conf-16
Prereq.: DMI 64
A continuation of the clinical experience. At the completion of the course, the student must have completed a minimum of 840 clock hours of clinical experience and be able to perform all radiographic goals as stated in the course objectives. CSU

DMI 68. Clinical Education in Diagnostic Medical Imaging (4) fa and sp
Conf-40
Prereq.: DMI 66
Clinical performance of internship objectives. Bi-weekly on-site rotating conferences by the faculty. CSU

DMI 69. Clinical Education in Diagnostic Medical Imaging (4) su
Conf-40
Prereq.: DMI 66
Students commencing internships in the summer will take DMI 69 before 68. Clinical performance of internship objectives. Bi-weekly on-site rotating conferences by the faculty. CSU

DMI 100. Review of Radiologic Technology (1)
Lec-3.5 (5 wks)
Prereq.: DMI 68, 69
Designed to prepare students for the certification examination given by the American Registry of Radiologic Technologists and for the examination for certification given by the California Radiation Health Branch. Career planning resources. CSU

DMI 120. Ultrasound Physics and Instrumentation (2)
Lec-2, field trips
Prereq.: Be a graduate and hold certification from an accredited allied health program with a direct patient-care component; e.g., Nursing, Radiography, Radiation Therapy, Nuclear Medicine, or Respiratory Care. Introduction to the physical principles of ultrasound. Analysis of the routine parameters of a diagnostic ultrasound beam; utilization of ultrasound scanners for the production of ultrasound waves used to interact with tissue; biological safety and risks. CSU

DMI 122. Sectional Anatomy for Sonographers (2)
Lec-2, lab-1, field trips
Prereq.: Have completed an allied health program with a direct patient-care component; e.g., Nursing, Radiography, Radiation Therapy, Nuclear Medicine, or Respiratory Care. Introduction to the related anatomy and physiology of the abdomen and pelvis as it appears in sagittal, coronal, and transverse sections on ultrasound scans. Emphasis on normal anatomy as visualized on sonograms. CSU

DMI 123. Obgyn Sonography (2)
Lec-2
Prereq.: Have completed an allied health program with a direct patient-care component; E.G., Nursing, Radiography, Radiation Therapy, Nuclear Medicine, or Respiratory Care. Identification of sectional anatomy used in OB/GYN scanning, both normal and abnormal, as it appears in sagittal, coronal, and axial scans. Field trips as required. CSU
DMI 125. Ultrasound Clinical Education (6)  
Lab-35  
Prereq.: Have completed an allied health program with a direct patient-care component  
Coreq.: Enrollment in ultrasound lecture course. Course is designed to give the student appropriate time in the clinical setting to become adept at scanning, while understanding the principles of quality assurance, patient care and the integration of clinical findings with patient history. CSU

Disabled Students Courses  
Announcement of Courses

All courses that begin with DSPS are designed for, but not limited to, individuals with disabilities.

CREDIT, NON-DEGREE APPLICABLE COURSES:

DSPS A. Computer Adaptations (1)  
Lec-3  
CR/NC only  
The content of DSPS A varies. A student with a disability may repeat DSPS A if it is needed for the continued success of the student in his/her CCSF classes, and the student has demonstrated progress using the supports learned in DSPS A.

DSPS M. Diagnostic Learning (2)  
Lec-1, lab-3  
CR/NC only  
Prereq.: Enrollment in at least one other class at City College of San Francisco  
Repeat: as needed for students with documented disabilities for the continued success of the student in his/her CCSF classes and if the student has demonstrated progress using the support learned in DSPS M.

Not open to students who have completed LERN M.  
An individualized course designed for students who have a documented disability but open to all students, similar in content to DSPS O except that DSPS M is designed for those students who have support and intervention needs which require more intensive daily assistance in one or more major skill areas or classes in a particular semester.

DSPS O. Diagnostic Learning (1)  
Lab 3  
CR/NC only  
Repeat: The content of DSPS O varies. A student may repeat DSPS O if it is needed for the continued success of the student in his/her CCSF classes, and the student has demonstrated progress using the supports learned in DSPS O.

Students who have completed LERN O may not enroll in DSPS O.  
An individualized course designed for students with cognitive disabilities, but open to all students. Focus is on instruction and practice of learning strategies related to support needed for one to two current CCSF classes. Students are assisted in using compensation strategies to use on assignments from their classes.

DSPS P. Perspectives on Disability Rights (1)  
Lec-2 (9 wks)  
CR/NC only  
Students who have completed LERN P may not enroll in DSPS P. Disability, education, and employment rights. Acquire skills to understand rights and obligations to accommodations as provided under The Americans with Disabilities Act (ADA) and Section 504 of the Vocational Rehabilitations Act of 1973. Students with disabilities develop self-management and self-advocacy skills related to their accommodation rights and learn more about recent legislation related to disability rights.

DSPS Q. Main Idea Strategies for Reading and Writing (1)  
Lec-2 (9 wks)  
CR/NC only  
Designed specifically for students with learning disabilities who are in English I, 90, 92, 94, 96, or any student in content courses involving reading and writing who wants to improve his or her reading comprehension skills and basic written expression skills. Examination of the prerequisite language and reasoning skills necessary for identifying the main idea in addition to textbook reading study skills.

DSPS R. Improvement of Receptive and Expressive Language (3)  
Lec-3, conf-1  
CR/NC only  
Not recommended for students enrolled in or who would be eligible for beginning level ESLN classes.

Designed for students experiencing difficulties in multiple level tasks that require inner language functions such as concentration, listening, taking notes and organizing. Increasing skills in organizing inner language, auditory and written information and producing organized verbal and written language.

DSPS S. Strategies for Problem Solving (1)  
Lec-2 (9 wks)  
CR/NC only  
Designed for students with learning disabilities but is open to all students. Practice and practical application in a variety of creative and critical thinking problem-solving processes presented for all learning modalities.

NONCREDIT COURSES

DSPS 4009. Vocational Skills for the Disabled  
Development of necessary skills to obtain entry-level employment. Through participation in actual work situations, students learn basic work skills, work behaviors and interpersonal skills necessary for obtaining and holding a job. Emphasis is on developing each student's maximum potential for work.

DSPS 4013. Fabric Arts - Developmentally Disabled (54 hrs)  

DSPS 4014. Arts and Crafts for the Disabled  
Arts and crafts for all disabilities. Introduces basic art concepts and crafts skills. Students create projects using materials and processes increasingly more challenging as the course progresses and their abilities permit. Adaptive equipment and techniques introduced as needed.
**DSPS 4017. Drama for the Disabled**
Developmentally and physically disabled students learn to explore and develop abilities in creative self-expression. Through participation in a variety of dramatic experiences, students develop their communication skills, increase coordination and sensor-motor communication skills and learn to function as group members. Process may lead to dramatic productions.

**DSPS 4022. Computer Skills - Disabled (180 hrs)**
Introduction to microcomputer applications for disabled students who desire entry-level clerical work. Introduces word processing, spreadsheet and database concepts using popular business software through lecture, lab and individualized instruction. Students create, edit, manipulate and print their own documents. May include the use of adaptive equipment such as screen enlargement or voice output.

**DSPS 4023. Job Search Skills, Disabled Lab**
Students with disabilities who are unable to benefit from a regular vocational program meet in small group workshops for one to ten hours per week. Hours and times are based on Student Educational Contact (SEC). Appropriate assistance is given in developing attitudes, self-confidence, and vocational competencies to locate, secure and retain employment. Field experiences with local employers, job training groups, and local organizations may be required.

**DSPS 4024. Prevocational Skills**
Extended individual social, basic survival, and independent living and work skills for students with developmental disabilities students who need these skills to enter a work training program or sheltered employment.

**DSPS 4027. Acquired Brain Impairment - Academic Retraining**
Academic instruction is provided for students with acquired brain impairments, such as stroke and head trauma. Designed to help students achieve their maximum performance in order to succeed on the job and/or in educational settings. Retraining is provided for individuals and groups in reading, writing, spelling, mathematics and study skills, according to each student's Student Educational Contract (SEC).

**DSPS 4028. Acquired Brain Impairment - Cognitive Retraining**
Students with an acquired brain impairment, such as stroke and head trauma, learn about basic neuroanatomy and how different injuries can affect how the brain functions. Introduction to memory strategies, techniques in visualization, time management and organizational skills. Students participate in activities involving following directions, problem-solving, memory, long-term planning and reasoning skills in accordance with Student Educational Contract (SEC). Personal, social, vocational and educational changes and adjustments are addressed.

**DSPS 4029. Educational Assessment - Disabled**
Individual and/or small group assessment of learning strengths and weaknesses to determine eligibility to programs and/or accommodations for disabled adults. May include eligibility for services as a learning disabled adult and/or the development of a Student Educational Contract (SEC). Students will attend 1-5 sessions. Times to be arranged by the instructor.

**DSPS 4031. Program for Learning Disabled (18-180 hrs)**
Academic instruction is provided for students with learning and other cognitive disabilities but is open to all students. Designed to help students achieve their maximum performance in order to succeed on the job and in educational settings. Small group instruction is provided in math, reading, writing, and spelling according to each student's educational contract (SEC).

**DSPS 4032. Office Skills for Disabled (180 hrs)**
Basic office skills for disabled students who desire entry-level clerical work. Covers standard business forms and formats in electronic document processing, recordkeeping, and filing. Practice in proofreading for correct English grammar, punctuation and spelling, and work on improving keyboarding speed through computer tutorials.

**DSPS 4033. Acquired Brain Impairment - Language Reintegration**
For students experiencing receptive and/or expressive language disorders (aphasia) resulting from stroke or other acquired brain impairments. Emphasis on auditory comprehension, thought organization, oral expression and writing. Individualized and group instruction is provided according to each Student Educational Contract (SEC).

**DSPS 4034. Effective Communication for Disabled**
For students with disabilities needing to increase their knowledge of the communication process. Emphasis on developing and improving verbal skills necessary for educational, vocational and social settings. Topics include listening, speaking, pragmatics and communication breakdowns. Instruction is provided in small groups. Students practice skills through role playing activities and classroom speeches.

**DSPS 4035. High Tech Computer Access for the Disabled (450 hrs)**
A laboratory course for the disabled introducing adaptive computer equipment and software for development of vocational, academic and daily living skills. Computer assisted instruction in cognitive and academic skills. Word processing, spreadsheet, database, graphics, Internet, and e-mail in accessible formats.

**DSPS 4036. Business English - Disabled (90 hrs)**
Review of basic English grammar, punctuation, spelling and writing designed for disabled students who want to perform competitive entry-level clerical work.

**DSPS 4037. Speech and Language Skills**
Strategies to alleviate communication deficits are provided for students with diagnosed speech, language and/or hearing disorders. Individual and small group instruction. Intake assessment is provided.

**DSPS 4038. Community Living Skills**
Using lecture, demonstration, roleplaying discussion exercise, field experience and the expressive arts, students with disabilities will develop and utilize skills needed for successful participation in the community.
DSPS 4041. Individualized Basic Education
This course is designed for students with disabilities who need individualized diagnostic/prescriptive instruction in reading, writing and mathematics.

DSPS 4042. Active Job Search
Designed for all students with disabilities who are job ready and need placement services and advanced job search strategies. Tailoring resumes, cover letters, and applications. Interviewing techniques and job search planning/management. Field experiences to local businesses, employers, and organizations may also be required.

DSPS 4043. Orientation to Vocational Ed (45 hrs)
Designed for students whose psychological disabilities interfere with the achievement of their educational and vocational goals. Course content will be tailored to the special needs of the students. Development of appropriate classroom behaviors, study skills and self-confidence will be stressed. Emphasis will be on the acquisition of vocational skills.

DSPS 4050. Life Skills for the Disabled (90-270 hrs)
Designed for students identified as developmentally delayed learners who want to improve their basic life skills for vocational purposes and are unable to benefit from instruction offered in regular classes. Small group instruction is offered in money handling skills, computer basics, community resources, and personal responsibility in preparation for entry level jobs and daily living. Students with reading levels below third grade may experience difficulty. Designed to be completed in two years (as long as the student is making measurable progress).

DSPS 4302. High School, GED, and Basic Skills for Disabled Students (90-450 hrs)
Designed for students with disabilities who want to earn a high school diploma or GED or who want to improve their basic skills for vocational or higher education purposes and are unable to benefit from instruction in regular classes. Small group and individualized instruction in reading, writing, math, and other areas is offered. In preparation for proficiency and/or GED tests, as specified on each student's Student Educational Contract (SEC). Course may be repeated as long as students are making measurable progress and/or until course requirements are met. Students who want to earn a high school diploma or GED must meet certain eligibility criteria. They are also eligible for special test-taking accommodations.

DSPS 4303. Adaptive Physical Education (Adaptive Yoga)
Designed for students with physically disabling conditions who want to improve and maintain their physical and mental well-being and who are unable to benefit from instruction offered in mainstream P.E. classes.

DSPS 4104. Crafts - Blind/Visually Impaired
Various crafts and ceramics for students who are blind or visually impaired. Emphasis on skills which enhance daily life. Crafts include knitting, crocheting, sewing, macrame, beadwork, weaving, painting, printmaking and ceramics.

Deaf/Hard of Hearing

DSPS 4210. Management of Hearing Loss
Instruction and practice in speechreading and other adaptive behavioral strategies. Acquaints students with appropriate assisting devices and available services for the hearing impaired. Accepting and coping with hearing loss is a fundamental objective. Appropriate for hearing impaired individuals and interested professionals.

DSPS 4212. ASL/ESL Skills Development for the Deaf
This course is intended for deaf and hard of hearing students who desire to improve their English writing skills. The course provides exposure to written English and American Sign Language, focusing on the functional needs of the students.

DSPS 4214. American Sign Language I
A beginning course in American Sign Language for persons desiring to communicate with deaf and hard of hearing persons. Coursework includes an introduction to Deaf Culture, expressive and receptive fingerspelling and grammatical structures which are introduced in the contexts of communication activities.

DSPS 4215. American Sign Language II
An intermediate course in sign language for the hearing impaired or persons desiring to communicate with the deaf or hard of hearing. Continuation of the students' work in manual communication skills, with emphasis on daily communication problems and colloquial expressions.

Earth Sciences
Announcement of Courses

CREDIT, DEGREE APPLICABLE COURSES:

Geography

GEOG 1L. Physical Geography (3)
Lec-3, field trips
An introduction to the Earth's physical environment. Processes and patterns of weather and climate, the development of landscapes, plant and animal distributions, and the interpretation of maps. Attention given to the physical environment and natural hazards of California and the Bay Area. CSU/UC/CAN

GEOG 1L. Physical Geography Laboratory (1)
Lab-3, field trips
Prereq.: Completion/concurrent enrollment in GEOG 1
The study of weather and climate, tectonic processes, and landscapes. Emphasis on the interpretation of weather maps, climatic data, aerial photographs, and topographic maps. CSU/UC