Associate Degree Programs and Certificates
Academic & Career Pathways

BEHAVIORAL & SOCIAL SCIENCES
- Anthropology
- Child Development
- Education
- Political Science
- Psychology
- Social Work
- Sociology

HEALTH SCIENCE
- Biology Pre-Allied Health
- Kinesiology
- Public Health

BUSINESS
- Accounting
- Business
- Business Office Technology
- Economics
- Entrepreneurship & Small Business Management
- Paralegal Studies
- Real Estate

HUMANITIES
- History
- Kumeyaay Studies
- Philosophy

LANGUAGE & COMMUNICATION
- American Sign Language
- Arabic Studies
- Communication
- English
- Spanish

STEM
- Biological Science
- Chemistry
- Engineering
- Mathematics
- Physics

ENVIRONMENTAL & APPLIED TECHNOLOGY
- Automotive Technology
- CADD Technology
- Center for Water Studies
- Computer Information Science
- Environmental Health & Safety
- Ornamental Horticulture
- Surveying

VISUAL & PERFORMING ARTS
- Art
- Graphic Design
- Music
ASSOCIATE DEGREE PROGRAMS AND CERTIFICATES

Courses that satisfy a degree or certificate requirement must be completed with a “C” grade or higher (P/NP grading not accepted).

BEHAVIORAL & SOCIAL SCIENCES

ANTHROPOLOGY FOR TRANSFER (AA-T) .................................................. 58
CHILD DEVELOPMENT
Child and Adolescent Development for Transfer (AA-T) ................. 58
Early Childhood Education for Transfer (AS-T) ........................................ 58
Infants and Toddlers .................................................. 59
Preschool Children .................................................. 59
Administration .................................................. 59
Early Childhood Intervention .................................................. 60
ELEMENTARY EDUCATION .................................................. 61
Elementary Teacher Education for Transfer (AA-T) ................................. 60
GENERAL STUDIES
Social & Behavioral Sciences .................................................. 61
POLITICAL SCIENCE FOR TRANSFER (AA-T) ........................................ 62
PSYCHOLOGY FOR TRANSFER (AA-T) .................................................. 62
SOCIAL WORK .................................................. 62
SOCIOLOGY FOR TRANSFER (AA-T) .................................................. 63
UNIVERSITY STUDIES
Social & Behavioral Sciences .................................................. 63

BUSINESS

ACCOUNTING .................................................. 64
Bookkeeping .................................................. 64
BUSINESS Business Administration for Transfer (AS-T) ......................... 64
Business Administration .................................................. 65
Business-General .................................................. 65
Craft Industries Entrepreneurship .................................................. 65
BUSINESS OFFICE TECHNOLOGY .................................................. 66
Administrative Assistant .................................................. 66
Executive Assistant .................................................. 66
Business Information Worker .................................................. 66
Account Clerk .................................................. 66
Front Office Receptionist .................................................. 67
Office Assistant Level I .................................................. 67
Office Assistant Level II .................................................. 67
Office Professional .................................................. 67
Office Software Specialist Level I .................................................. 68
Office Software Specialist Level II .................................................. 68
ECONOMICS FOR TRANSFER (AA-T) .................................................. 68
ENTREPRENEURSHIP-SMALL BUSINESS MANAGEMENT .................... 68
GENERAL STUDIES Business & Technology .................................................. 68
MANAGEMENT .................................................. 69
PARALEGAL STUDIES .................................................. 69
REAL ESTATE .................................................. 70
Broker’s License .................................................. 71
UNIVERSITY STUDIES
Business & Economics .................................................. 71

ENVIRONMENTAL & APPLIED TECHNOLOGY

AUTOMOTIVE TECHNOLOGY .................................................. 72
ASCCA .................................................. 72
ASEP .................................................. 72
Ford ASSET .................................................. 72
Advanced Engine Performance and Emissions .................................................. 73
Brakes and Front-End .................................................. 74
Engine Performance and Drive Train .................................................. 74
CADD TECHNOLOGY
Building Design Industry .................................................. 74
Manufacturing Industry .................................................. 74
CADD/Manufacturing Industry .................................................. 74
CENTER FOR WATER STUDIES
Backflow & Cross-Connection .................................................. 75
Control .............................................................................. 75
Water Distribution Operations .................................................. 75
Water Resources Management .................................................. 75
Water Treatment Plant Operations .................................................. 76
Wastewater Collection Systems .................................................. 76
Wastewater Treatment Operations .................................................. 77
Water Distribution Operations .................................................. 77
Stackable Certificates of Specialization Water & Wastewater Fundamentals .................................................. 78
Water & Wastewater Fundamentals .................................................. 79
Advanced Water Distribution Operations .................................................. 79
Advanced Water Treatment Operations .................................................. 79
Computer and Information Science
Networking, Security and System Administration .................................................. 80
Web Development .................................................. 80
CISCO Certified Network Associate .................................................. 80
CISCO Networking Professional .................................................. 81
Computer Programming .................................................. 81
Computer Support Technician .................................................. 81
Cyber Security Specialist .................................................. 81
Web Design .................................................. 81
Web Programming .................................................. 81
COMPUTER SCIENCE
Mechantronics .................................................. 81
ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT
Environmental Management .................................................. 82
Environmental Technician .................................................. 82
Occupational Safety and Health (OSH) Management .................................................. 82
Occupational Safety and Health (OSH) Technician .................................................. 82
ORNAMENTAL HORTICULTURE
Arboriculture .................................................. 83
Floral Design .................................................. 83
Golf Course and Sports Turf Management .................................................. 84
Irrigation Technology .................................................. 84
Landscape Design .................................................. 84
Landscape Technology .................................................. 85
Nursery Technology .................................................. 85
Sustainable Urban Landscapes .................................................. 85
Viticulture Technician Apprentice .................................................. 86
Basic Ornamental Horticulture .................................................. 86
SURVEYING .................................................. 87

HEALTH SCIENCE

BIOLOGICAL SCIENCES
Biological Sciences: Pre-Allied Health .................................................. 87
GENERAL STUDIES
Lifelong Health, Well-Being and Self-Development .................................................. 87
KINESIOLOGY
Kinesiology for Transfer (AA-T) .................................................. 88
Exercise Science .................................................. 88
Recreational Leadership-School-Based Program .................................................. 89
PUBLIC HEALTH SCIENCE FOR TRANSFER (AS-T) ........................................ 89

HUMANITIES

GENERAL STUDIES
Humanities & Fine Arts .................................................. 90
HISTORY .................................................. 90
History for Transfer (AA-T) .................................................. 90
KUMEYAA STUDIES .................................................. 91
PHILOSOPHY FOR TRANSFER (AA-T) .................................................. 91
UNIVERSITY STUDIES
Humanities & Fine Arts .................................................. 92

LANGUAGE AND COMMUNICATION

AMERICAN SIGN LANGUAGE .................................................. 92
ARABIC STUDIES .................................................. 93
COMMUNICATION .................................................. 94
Communication Studies for Transfer (AA-T) .................................................. 93
ENGLISH .................................................. 94
English for Transfer (AA-T) .................................................. 94
GENERAL STUDIES
Communication & Language Arts .................................................. 95
SPANISH .................................................. 96
Spanish for Transfer (AA-T) .................................................. 95
UNIVERSITY STUDIES
Communication & Language Arts .................................................. 96

STEM

BIOLOGICAL SCIENCES .................................................. 97
Biology for Transfer (AS-T) .................................................. 97
CHEMISTRY .................................................. 97
ENGINEERING .................................................. 98
Civil Engineering .................................................. 98
Electrical & Computer Engineering .................................................. 98
Mechanical & Aerospace Engineering .................................................. 98
GENERAL STUDIES Science & Mathematics .................................................. 99
MATHEMATICS .................................................. 99
Mathematics for Transfer (AS-T) .................................................. 99
PHYSICS .................................................. 100
Physics for Transfer (AS-T) .................................................. 100
UNIVERSITY STUDIES Science & Mathematics .................................................. 101

VISUAL & PERFORMING ARTS

ART
Art History for Transfer (AA-T) .................................................. 102
Studio Arts for Transfer (AA-T) .................................................. 102
Art and Design .................................................. 103
Art-Drawing and Painting .................................................. 103
GRAPHIC DESIGN .................................................. 104
Digital Photography .................................................. 104
Web Graphics .................................................. 104
MUSIC
Music for Transfer (AA-T) .................................................. 104
Music Education .................................................. 105
Music Industry Studies .................................................. 105

EXPLORATORY

CALIFORNIA STATE UNIVERSITY GENERAL EDUCATION BREATHABILITY .................................................. 106
INTERSEGMENTAL GENERAL EDUCATION TRANSFER CURRICULUM (CSU OR UC) .................................................. 106

া ASSOCIATE DEGREE FOR TRANSFER
া ASSOCIATE DEGREE
া CERTIFICATE OF ACHIEVEMENT
া CERTIFICATE OF SPECIALIZATION
ANTHROPOLOGY FOR TRANSFER (AA-T)

The AA-T in Anthropology for Transfer guides students in their quest to understand what it means to be human, and how humans make meaning in life. Students take courses from three subfields: archaeology, cultural anthropology, and physical anthropology, and learn about human cultures and civilizations, past and present. The AA-T in Anthropology for Transfer is designed specifically to prepare students for transfer to a California State University, where a baccalaureate degree may be earned in Anthropology or a closely related field.

The following is required for the AA-T in Anthropology for Transfer degree:
1. 60 semester or 90 quarter CSU-transferable units;
2. The Intersegmental General Education Transfer Curriculum (IGETC) or the California State University General Education-Breadth Requirements;
3. Minimum of 18 semester or 27 quarter units in the major or area of emphasis;
4. Minimum grade point average (GPA) of 2.0;
5. Grade of C or better in all courses required for the major or area of emphasis.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Demonstrate an understanding of the core concepts of archaeology, cultural anthropology, and physical anthropology;
- Demonstrate knowledge of cultural variation and diversity of perspectives, practices, and beliefs found within and across cultures;
- Understand long term changes in the conditions that have shaped humans and the environments they inhabit.

Associate in Arts for Transfer Degree Requirements:

Course Title Units

Required Core:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 120</td>
<td>Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 130</td>
<td>Introduction to Physical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 140</td>
<td>Introduction to Archaeology</td>
<td>3</td>
</tr>
</tbody>
</table>

List A: (Select 1 course)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 160</td>
<td>Elementary Statistics</td>
<td>4</td>
</tr>
<tr>
<td>PSY 215</td>
<td>Statistics for the Behavioral Sciences</td>
<td>4</td>
</tr>
</tbody>
</table>

List B: (Select 1-2 courses; 3-5 units)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 140</td>
<td>Human Anatomy</td>
<td>5</td>
</tr>
<tr>
<td>PSY 205</td>
<td>Research Methods in Psychology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 110</td>
<td>Planet Earth</td>
<td>3</td>
</tr>
<tr>
<td>and</td>
<td>GEOL 111 Planet Earth Laboratory (must be taken if GEOL 110 is selected)</td>
<td>1</td>
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</tbody>
</table>

GEOL 104 Earth Science 3

GEOG 121 Physical Geography: Earth Systems Laboratory (must be taken if GEOL 104 is selected) 1

List C: (Select 1 course)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 116</td>
<td>Introduction to World Music</td>
<td>3</td>
</tr>
<tr>
<td>RELG 120</td>
<td>World Religions 3</td>
<td></td>
</tr>
</tbody>
</table>

Total Required 19-21

Double-Counted Units 15-16

General Education Requirements (CSU GE or IGETC-CSU) 37-39

Electives 15-20

Total Degree Units 60

II. EARLY CHILDHOOD EDUCATION FOR TRANSFER (AS-T)

The AS-T in Early Childhood Education is designed to prepare students planning to transfer to a California State University for a bachelor’s degree in Child Development or Early Childhood Education by providing lower division course preparation. This degree facilitates a clearly defined career pathway for students wishing to pursue a career in early childhood development and care.

The following is required for the AS-T in Early Childhood Education for Transfer degree:
1. Minimum of 60 semester or 90 quarter CSU-transferable units.
2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
3. Minimum of 18 semester or 27 quarter units in the major.
4. A grade of “C” OR better in all courses required for the major.
5. Certified completion of the California State University General Education (CSU GE) Breadth pattern OR the Intersegmental General Education Transfer Curriculum (IGETC) pattern; see Degree Requirements and Transfer Information section for more information. Note: if following IGETC, IGETC-CSU must be followed for admission to a CSU.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Integrate the key developmental concepts and teaching strategies into a cogently articulated philosophy of child and adolescent education and care.
- Employ curriculum that is well planned, developmentally appropriate and based on the interests and needs of children and adolescents.
- Implement effective guidance strategies with children and adolescents.
- Demonstrate the ability to plan programs for children and adolescent which enhance their physical, intellectual, emotional and social development.

Associate in Arts for Transfer Degree Requirements:

Course Title Units

Required Core:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD 125</td>
<td>Child Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>PSY 120</td>
<td>Introductory Psychology</td>
<td>3</td>
</tr>
<tr>
<td>MATH 160</td>
<td>Elementary Statistics 4</td>
<td></td>
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</tbody>
</table>

List A: (Choose 9 units)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD 131</td>
<td>Child, Family and Community</td>
<td>3</td>
</tr>
<tr>
<td>BIO 130</td>
<td>General Biology I</td>
<td>3</td>
</tr>
<tr>
<td>CD 130</td>
<td>Curriculum: Design and Implementation</td>
<td>3</td>
</tr>
<tr>
<td>CD 213</td>
<td>Observation and Assessment</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Required 19

Double-Counted Units 12-16

General Education Requirements (CSU GE or IGETC-CSU) 37-39

Electives 14-20

Total Degree Units 60
Integrate the key developmental concepts and teaching strategies into a cogently articulated philosophy of early childhood education and care.

Employ appropriate classroom organizational and management techniques in a variety of early childhood education settings, including the implementation of curriculum that is well planned, developmentally appropriate, and based on the interests and needs of the children.

Survey, assemble, and expand curricula resources for use in specific early childhood classrooms and centers.

Apply and implement effective and sensitive discipline and guidance strategies directly with children.

Clearly demonstrate the ability to plan child development programs which deliberately intend to advance, stimulate or otherwise enhance children’s physical, intellectual, emotional and social development in ways which are appropriate to the children’s developmental level.

Assess their own professional competence and progress and develop a plan for professional career steps and growth.

CAREER OPPORTUNITIES

* Adoption Counselor
* Child Psychologist
* Curriculum Development
* Development Specialist
* Early Intervention Aide
* Educational Consultant
* Infant/Toddler Teacher
* Outdoor Education Specialist
* Preschool Director
* Recreation Leader
* Recreation Specialist
* School Age Child Care Teacher
* Social Service Specialist
* Special Education Assistant – Children with Special Needs
* Bachelor Degree or higher required

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD 125</td>
<td>Child Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>CD 130</td>
<td>Curriculum: Design and Implementation</td>
<td>3</td>
</tr>
<tr>
<td>CD 131</td>
<td>Child, Family and Community</td>
<td>3</td>
</tr>
<tr>
<td>CD 134</td>
<td>Health, Safety and Nutrition of Young Children</td>
<td>3</td>
</tr>
<tr>
<td>CD 153</td>
<td>Teaching in a Diverse Society</td>
<td>3</td>
</tr>
<tr>
<td>CD 212</td>
<td>Practicum in Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>CD 213</td>
<td>Observation and Assessment</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Units for Major (6 units may be double-counted with GE)</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Total Units for CSU/GE or IGETC-CSU</td>
<td>37-39</td>
</tr>
<tr>
<td></td>
<td>Total Transferable Elective Units</td>
<td>3-5</td>
</tr>
<tr>
<td></td>
<td>Total Units for Degree</td>
<td>60</td>
</tr>
</tbody>
</table>

III. CHILD DEVELOPMENT

The Child Development program is designed to prepare students for employment as teachers, directors and aides in preschools and child care centers, including infant/toddler and extended day facilities. The curriculum is also appropriate for parents, administrators, health care professionals, and others working with children. Course work meets the educational components of the Department of Social Services license regulations for child care programs. The degree meets the Title 5 Department of Education educational requirements of the Assistant, Associate, Teacher, Master Teacher and Site Supervisor Child Development Permits. The curriculum meets lower division course preparation for students planning to obtain a bachelor’s degree in Child Development at most CSU campuses.

The Department of Social Services Title 22 minimum requirements to be a preschool teacher are 12 units in Child Development which must include: CD 125, CD 131, one curriculum class (CD 123, 126, 127, 128, 129 or 130), and one additional CD course (3 units). The California Department of Education Title 5 minimum education requirements at the Teacher level on the Child Development Matrix are 24 units in Child Development which must include: CD 125, CD 131, one curriculum class (CD 123, 126, 127, 128, 129 or 130), 12 additional units in CD, and 16 units of general education which must include one degree applicable course in each of four general education categories: English/Language Arts; Math or Science; Social Sciences; Humanities and/or Fine Arts.

The California Community Colleges’ Curriculum Alignment Project (CAP) consolidates and clarifies the transfer requirements for teachers of young children in the state of California. The eight CAP courses, CD 123, 125, 130, 131, 134, 153, 212 and 213, provide a strong foundation for transfer to four-year programs in Child Development of Early Childhood Education.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Integrate the key developmental concepts and teaching strategies into a cogently articulated philosophy of early childhood education and care.
- Employ appropriate classroom organizational and management techniques in a variety of early childhood education settings, including the implementation of curriculum that is well planned, developmentally appropriate, and based on the interests and needs of the children.
- Survey, assemble, and expand curricula resources for use in specific early childhood classrooms and centers.
- Apply and implement effective and sensitive discipline and guidance strategies directly with children.
- Clearly demonstrate the ability to plan child development programs which deliberately intend to advance, stimulate or otherwise enhance children’s physical, intellectual, emotional and social development in ways which are appropriate to the children’s developmental level.
- Assess their own professional competence and progress and develop a plan for professional career steps and growth.

CAREER OPPORTUNITIES

* Adoption Counselor
* Child Psychologist
* Curriculum Development
* Development Specialist
* Early Intervention Aide
* Educational Consultant
* Infant/Toddler Teacher
* Outdoor Education Specialist
* Preschool Director
* Recreation Leader
* Recreation Specialist
* School Age Child Care Teacher
* Social Service Specialist
* Special Education Assistant – Children with Special Needs
* Bachelor Degree or higher required

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD 106</td>
<td>Practicum: Beginning Observation and Experience</td>
<td>1</td>
</tr>
<tr>
<td>CD 123</td>
<td>Principles and Practices of Programs and Curriculum for Young Children</td>
<td>3</td>
</tr>
<tr>
<td>CD 125</td>
<td>Child Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>CD 126</td>
<td>Art for Child Development</td>
<td>3</td>
</tr>
<tr>
<td>CD 127</td>
<td>Science and Mathematics for Child Development</td>
<td>3</td>
</tr>
<tr>
<td>CD 128</td>
<td>Music and Movement for Child Development</td>
<td>3</td>
</tr>
<tr>
<td>CD 129</td>
<td>Language and Literature for Child Development</td>
<td>3</td>
</tr>
<tr>
<td>CD 131</td>
<td>Child, Family and Community</td>
<td>3</td>
</tr>
<tr>
<td>CD 134</td>
<td>Health, Safety and Nutrition of Young Children</td>
<td>3</td>
</tr>
<tr>
<td>CD 141</td>
<td>Working with Children with Special Needs</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Required Including Core Courses</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Plus General Education Requirements</td>
<td>39</td>
</tr>
</tbody>
</table>

B. PRE SCHOOL CHILDREN

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD 130</td>
<td>Curriculum: Design and Implementation</td>
<td>3</td>
</tr>
<tr>
<td>CD 132</td>
<td>Observation and Assessment: Field Experience Seminar</td>
<td>3</td>
</tr>
<tr>
<td>CD 133</td>
<td>Practicum: Field Experience: Student Teaching</td>
<td>2</td>
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<tr>
<td></td>
<td>Total Required Including Core Courses</td>
<td>8</td>
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<tr>
<td></td>
<td>Plus General Education Requirements</td>
<td>39</td>
</tr>
</tbody>
</table>

Certificate of Achievement

Students who complete only the courses required for the major including an area of emphasis qualify for a Certificate in Child Development in that area of emphasis. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

CERTIFICATES OF SPECIALIZATION:

ADMINISTRATION

This certificate offers specific training for individuals who are seeking a position as the director of a California Title 22 early childhood development program. Students who complete the requirements below qualify for a Certificate in Child Development: Administration. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Program Learning Outcomes

Upon successful completion of this certificate, students will be able to:

- Develop and manage the budget for a child care or preschool program.
- Incorporate regulatory laws into planning for a preschool program.
- Develop and apply school policies and procedures, including those related to personnel and families.

CAREER OPPORTUNITIES

Students may find positions as the director or assistant director of early childhood programs licensed by California Title 22 for children from 2-5 years. Students wanting to direct programs that include infants and toddlers from birth-2 years should take a Child Development course specifically related to infants and toddlers (CD 124 or 143).

Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD 125</td>
<td>Child Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>CD 131</td>
<td>Child, Family and Community</td>
<td>3</td>
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<tr>
<td></td>
<td>Total Required</td>
<td>6</td>
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</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CD 126</td>
<td>Art for Child Development</td>
<td>3</td>
</tr>
<tr>
<td>CD 127</td>
<td>Science and Mathematics for Child Development</td>
<td>3</td>
</tr>
<tr>
<td>CD 128</td>
<td>Music and Movement for Child Development</td>
<td>3</td>
</tr>
<tr>
<td>CD 129</td>
<td>Language and Literature for Child Development</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Required</td>
<td>3</td>
</tr>
</tbody>
</table>

Areas of Emphasis

A. INFANTS AND TODDLERS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD 124</td>
<td>Infant and Toddler Development</td>
<td>3</td>
</tr>
<tr>
<td>CD 132</td>
<td>Observation and Assessment: Field Experience Seminar</td>
<td>3</td>
</tr>
<tr>
<td>CD 143</td>
<td>Responsive Planning for Infant/Toddler Care</td>
<td>3</td>
</tr>
<tr>
<td>CD 170</td>
<td>Practicum: Field Experience with Infants and Toddlers</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total Required Including Core Courses</td>
<td>42</td>
</tr>
</tbody>
</table>
ELEME NTARY EDUCATION

Associate Degree for Transfer™

I. ELEMENTARY TEACHER EDUCATION FOR TRANSFER (AA-T)

The Associate in Arts in Elementary Teacher Education for Transfer (AA-T in Elementary Teacher Education) is designed to provide lower division preparation for Liberal Arts, Liberal Studies, Integrated Teacher Education, or a similar major at a baccalaureate institution. It is an interdisciplinary program that provides students with a foundation of knowledge in the areas of English composition, oral communication, physical and life sciences, social sciences, arts and humanities, and critical thinking. Transfer students earning the AA-T in Elementary Teacher Education will receive a broad, general education focus that will prepare them to teach a variety of subjects at the elementary school level.

The following is required for the AA-T in Elementary Teacher Education for Transfer degree:

1. Minimum of 60 semester or 90 quarter CSU-transferable units.
2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
3. Minimum of 18 semester or 27 quarter units in the major.
4. A grade of “C” or better in all courses required for the major.
5. Certified completion of the California State University General Education (CSU GE) Breadth pattern OR the Intersegmental General Education Curriculum (IGETC) pattern; see Degree Requirements and Transfer Information section for more information.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

• Demonstrate interpersonal skills in a diverse setting.
• Demonstrate effective communication in teaching and learning environments.
• Use mathematical, algebraic, geometric, and statistical methods to solve problems.
• Describe general principles of the political institutions and government of the United States.
• Assess how social issues are influenced by geographical and historical processes.
• Analyze basic concepts of physical and biological science to evaluate scientific information and solve scientific problems.
• Analyze the principle elements of representative examples of art, architecture, literature, theater, philosophy, music, dance, film, or other relevant areas of cultural and/or intellectual creative.
• Demonstrate an awareness of the historical and philosophical context of representative areas, movements, media, works, or styles of cultural and/or intellectual creativity.
• Demonstrate the ability to write effectively.
• Organize thoughts and ideas in both oral and written format.

Associate in Arts Degree Requirements:

Core Curriculum:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 130</td>
<td>General Biology I</td>
<td>3</td>
</tr>
<tr>
<td>BIO 131</td>
<td>General Biology I Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>CD 125</td>
<td>Child Development and Growth</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 115</td>
<td>Fundamentals of Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>COMM 122</td>
<td>Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>ED 200</td>
<td>Teaching as a Profession</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 120</td>
<td>College Composition and Reading</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 122</td>
<td>Introduction to Literature</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 106</td>
<td>World Regional Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 121</td>
<td>Physical Geography: Earth</td>
<td>1</td>
</tr>
<tr>
<td>GEOL 104</td>
<td>Earth Science</td>
<td>3</td>
</tr>
<tr>
<td>HIST 100</td>
<td>Early World History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 108</td>
<td>Early American History</td>
<td>3</td>
</tr>
<tr>
<td>MATH 125</td>
<td>Structure and Concepts of</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elementary Mathematics I</td>
<td></td>
</tr>
<tr>
<td>PHYC 110</td>
<td>Introductory Physics</td>
<td>4</td>
</tr>
<tr>
<td>POSE 121</td>
<td>Introduction to U.S. Government</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>and Politics</td>
<td></td>
</tr>
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List A

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ENGL 124</td>
<td>Advanced Composition: Critical</td>
<td>3</td>
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<tr>
<td></td>
<td>Reasoning and Writing</td>
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List B: Select one:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 100</td>
<td>Art Appreciation</td>
<td>3</td>
</tr>
<tr>
<td>MUS 110</td>
<td>Great Music Listening</td>
<td>3</td>
</tr>
<tr>
<td>THTR 110</td>
<td>Introduction to the Theatre</td>
<td>3</td>
</tr>
</tbody>
</table>

List C: Select eight units:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any course in List B not selected</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ARBC 121</td>
<td>Arabic II</td>
<td>5</td>
</tr>
<tr>
<td>ART 140</td>
<td>Survey of Western Art I:</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Prehistory through Middle Ages</td>
<td></td>
</tr>
<tr>
<td>ART 141</td>
<td>Survey of Western Art II:</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Renaissance through Modern</td>
<td></td>
</tr>
<tr>
<td>ASL 121</td>
<td>American Sign Language II</td>
<td>4</td>
</tr>
<tr>
<td>COMM 120</td>
<td>Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>ES 253</td>
<td>Physical Education in Elementary</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Schools</td>
<td></td>
</tr>
<tr>
<td>FREN 121</td>
<td>French II</td>
<td>5</td>
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<tr>
<td>HED 105</td>
<td>Health Education for Teachers</td>
<td>1</td>
</tr>
<tr>
<td>ITAL 121</td>
<td>Italian II</td>
<td>5</td>
</tr>
<tr>
<td>MATH 126</td>
<td>Structure and Concepts of</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elementary Mathematics II</td>
<td></td>
</tr>
<tr>
<td>MUS 118</td>
<td>Introduction to Music</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 125</td>
<td>Critical Thinking</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 130</td>
<td>Logic</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 140</td>
<td>Problems in Ethics</td>
<td>3</td>
</tr>
<tr>
<td>RELG 120</td>
<td>World Religions</td>
<td>3</td>
</tr>
<tr>
<td>RELG 130</td>
<td>Scriptures of World Religions</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 121</td>
<td>Spanish II</td>
<td>5</td>
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<tr>
<td></td>
<td>Total Units for Major</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Total Units for CSU GE or IGETC-CSU General Education Requirements (all met)</td>
<td>37-39</td>
</tr>
<tr>
<td></td>
<td>Total Transferable Elective Units</td>
<td>0</td>
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<tr>
<td></td>
<td>Total Units for Degree</td>
<td>60</td>
</tr>
</tbody>
</table>

Please note: SDSU accepts this degree for students transferring into Liberal Studies Generalist Education.

Select one of the following:

CD 137            | Administration of Child Development Programs I | 3     |
CD 138            | Administration of Child Development Programs II | 3     |

Total Required 15
II. ELEMENTARY EDUCATION
This degree program is designed to provide lower division preparation for transfer to San Diego State University as a Liberal Studies major. Because the degree emphasizes a strong general education approach, it may be an appropriate major for a variety of career options. Students are encouraged to refer to the San Diego State University catalog and/or consult with an academic advisor before selecting the various options listed below. Upon completion, students may request certification of lower division general education course work required by the California State University system. Students interested in transferring to another college or university should check the requirements of that institution.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
- Demonstrate global awareness and cultural sensitivity.
- Demonstrate interpersonal skills in a diverse setting.
- Demonstrate effective communication in teaching and learning environments.
- Demonstrate technological awareness.
- Be prepared to request certification of lower division general education course work required by the California State University system.

CAREER OPPORTUNITIES
* Administrator
  * Audiovisual Specialist
  * School Clerical Worker
  * Counselor
  * Educational Consultant
  * Educational Psychologist
  * Educational Therapist
  * Educational Writer
  * Food Service
  * Guidance Worker
  * Librarian
  * Library Technician
  * Social Psychologist
  * Speech Pathologist/Audiologist
  * Teacher
  * Teacher’s Aide
  * Tutor
* Bachelor Degree or higher required

Associate in Arts Degree Requirements:
Course Title Units

COMPOSITION, ORAL COMMUNICATION, AND LITERATURE
1. Composition (minimum six units)
   ENGL 120 College Composition and Reading 3
   and one of the following:
   and
   COMM 137 Critical Thinking in Group Communication 3
   COMM 145 Argumentation 3
   ENGL 124 Advanced Composition: Critical Reasoning and Writing 3
   PHIL 125 Critical Thinking 3
   PHIL 130 Logic 3
   *Preferred

2. Communication (minimum three units)
   COMM 120 Interpersonal Communication 3
   COMM 122 Public Speaking 3

3. Literature (minimum three units)
   ENGL 122 Introduction to Literature 3
   ENGL 270 World Literature I 3
   ENGL 271 World Literature II 3

MATHEMATICS AND SCIENCES
4. Mathematics
   MATH 125 Structure and Concepts of Elementary Mathematics I 3
   MATH 126 Structure and Concepts of Elementary Mathematics II 3

5. Biological Sciences
   BIO 130 General Biology I 3
   BIO 131 General Biology I Laboratory 1

6. Physical Sciences
   GEOL 104 Earth Science 3
   GEOL 121/GEOL 105 Physical Geography: Earth Systems Laboratory or Physical Geology: Earth Systems Laboratory 1

SOCIAL SCIENCE AND HISTORY
7. Global Perspective
   GEOG 106 World Regional Geography 3

8. American Institutions (minimum six units, choose one course from each category):
   A:
   HIST 108 Early American History 3
   HIST 118 U.S. History: Chicano/Chicana Perspectives I 3
   HIST 130 U.S. History and Cultures: Native American Perspectives I 3
   HIST 180 U.S. History: Black Perspectives I 3
   B:
   HIST 109 Modern American History 3
   HIST 119 U.S. History: Chicano/Chicana Perspectives II 3
   HIST 131 U.S. History and Cultures: Native American Perspectives II 3
   HIST 181 U.S. History: Black Perspectives II 3
   POSC 121 Introduction to U.S. Government and Politics 3

9. Civilizations
   HIST 100 Early World History 3

VISUAL AND PERFORMING ARTS/HUMANITIES
10. Music
    MUS 118 Introduction to Music 4

11. Art/Humanities
    ART 100 Art Appreciation 3

12. Human Growth and Development (choose one option):
    Option I:
    CD 125 Child Growth and Development 3
    Option II:
    PSY 120 Introductory Psychology 3
    PSY 150 Developmental Psychology 3

13. General Education/Humanities (choose one option):
    Option I:
    ARBC 121, ASL 121, FREN 121, ITAL 121 or SPAN 121 4-5
    Option II:
    PHIL 140 or RELG 120 or RELG 130 (choose this option only if 3 years of foreign language have been taken in high school) 3
    Option III:
    ARBC 220, ASL 220, FREN 220, ITAL 220 or SPAN 220 (choose this option only if 3 years of foreign language have been taken in high school) 4-5

14. Additional Requirements
    ED 200 Teaching as a Profession 3
    ES 253 Physical Education in Elementary Schools 3
    HED 105 Health Education for Teachers 1
    ES Activity (At least two courses marked with an asterisk) 2-3
    Total Required 80-86

Recommended Elective:
    PSC 100T Physical Science for Elementary Education 3

†Offered at Grossmont College; required for major at SDSU

GENERAL STUDIES: SOCIAL AND BEHAVIORAL SCIENCES
The Associate Degree in General Studies with an Area of Emphasis provides an opportunity for students to design a program of study meaningful and appropriate to their own needs and academic interests. The degree includes general education and a focused area of study. Students may choose to earn this degree for preparation for employment or for personal development.

REQUIREMENTS
To meet the General Studies degree requirements, a student must complete the following:

I. AS or AA General Education Requirements (see Degree Requirements and Transfer Information section)

AND

II. Areas of Emphasis
Choose a minimum of 18 units from one Area of Emphasis:
A. Business and Technology
B. Communication and Language Arts
C. Humanities and Fine Arts
D. Lifelong Health, Well-Being and Self-Development
E. Science and Mathematics
F. Social and Behavioral Sciences

The Associate in Arts in General Studies with an Emphasis in Social and Behavioral Sciences will be awarded to students upon completion of general education degree requirements and 18 units in this area. These courses emphasize the study and understanding of human behavior. Students will evaluate and interpret human societies; the institutions, organizations and groups that form them; the ways in which individuals and groups relate to one another; and various approaches and methodologies of the disciplines. Students must complete a minimum of six units in Social Science and six units in Behavioral Science. The remaining six units may be taken from either category.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
- Demonstrate general principles of the political institutions and government of the United States.
- Demonstrate an understanding and appreciation of social, political, and economic institutions within a historical perspective.
- Evaluate the ways people act and interact in cultures, societies and social subgroups.
- Assess how social issues are influenced by geographical and historical processes.
**Behavioral & Social Sciences**

- Analyze political issues and formulate solutions.
- Discuss major theories and concepts of government.
- Comprehend enduring political thoughts and ideas throughout history.

**Program Learning Outcomes**

Upon successful completion of this program, students will be able to:

- Demonstrate familiarity with the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology.
- Understand and apply basic research methods in psychology, including research design, data analysis, and interpretation.
- Respect and use critical and creative thinking, skeptical inquiry, and, when possible, the scientific approach to solve problems related to behavior and mental processes.
- Understand and apply psychological principles to personal, social, and organizational issues.
- Weigh evidence, tolerate ambiguity, act ethically, and reflect other values that are the underpinnings of psychology as a discipline.

**Associate in Arts Degree Requirements:**

**Core Curriculum:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>POSC 121</td>
<td>Introduction to U.S. Government and Politics</td>
<td>3</td>
</tr>
</tbody>
</table>

**List A:** Select three of the following:

- POSC 120 Introduction to U.S. Government and Politics 3
- POSC 124 Introduction to Comparative Government and Politics 3
- POSC 130 Introduction to International Relations 3
- MATH 160 Elementary Statistics 4
- or PSY 215 Statistics for the Behavioral Sciences 4

**List B:** Select two of the following:

- HIST 108 Early American History* 3
- HIST 109 Modern American History* 3
- Any course from List A not selected above 3-4

Total Units for Major (9-12 units may be double-counted with GE) 18-19

Total Units for CSU GE Breadth 3-4

Total Transferable Elective Units 2-5

Total Units for Degree 60

*One course, HIST 108 or 109, meets CSU American Ideals requirement, along with Core of POSC 121.

Please note: SDSU accepts this degree for students transferring into Political Science B.A. and Transfer Information section for more information. Note: If following IGETC, IGETC-CSU must be followed for admission to a CSU.

**Program Learning Outcomes**

Upon successful completion of this program, students will be able to:

- Discuss major theories and concepts of political science.
- Analyze political issues and formulate solutions.

**POLITICAL SCIENCE FOR TRANSFER (AA-T)**

The AA-T in Political Science for Transfer is designed to prepare students to transfer to a California State University (CSU) with the intent of earning a Bachelor of Arts degree in Political Science. Students who earn the AA-T in Political Science will know about various forms of governments and governmental institutions, political parties, current public affairs, interest groups and international politics. They will understand the role of the citizen and the democratic process, and have knowledge of the history and evolution of various forms of government. Future careers include those in government service, public administration, international organizations or corporations, law, or teaching.

The following is required for the AA-T in Political Science for Transfer degree:

1. Minimum of 60 semester or 90 quarter CSU-transferable units.
2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
3. Minimum of 18 semester or 27 quarter units in the major.
4. A grade of “C” or better in all courses required for the major.
5. Certified completion of the California State University General Education (CSU GE) Breadth pattern or the Intersegmental General Education Transfer Curriculum (IGETC) pattern; see Degree Requirements and Transfer Information section for more information. Note: If following IGETC, IGETC-CSU must be followed for admission to a CSU.

**Program Learning Outcomes**

Upon successful completion of this program, students will be able to:

- Discuss major theories and concepts of political science.
- Analyze political issues and formulate solutions.

**Psychology for Transfer (AA-T)**

This degree program is designed to present students with a broad base understanding of human behavior so that they may explore human thought and behavior, and various methodologies. Students completing this degree may be interested in pursuing careers in research, counseling, teaching, and other behavioral science professions.

The following is required for the AA-T in Psychology for Transfer degree:

1. Minimum of 60 semester or 90 quarter CSU-transferable units.
2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
3. Minimum of 18 semester or 27 quarter units in the major.
4. A grade of “C” or better in all courses required for the major.
5. Certified completion of the California State University General Education (CSU GE) Breadth pattern or the Intersegmental General Education Transfer Curriculum (IGETC) pattern; see Degree Requirements and Transfer Information section for more information. Note: If following IGETC, IGETC-CSU must be followed for admission to a CSU.

**Program Learning Outcomes**

Upon successful completion of this program, students will be able to:

- Think critically, analyze research, and interpret results.
- Demonstrate proficiency in the scientific approach to solve problems related to behavior and mental processes.
- Weigh evidence, tolerate ambiguity, act ethically, and reflect other values that are the underpinnings of psychology as a discipline.

**Social Work**

This degree offers lower division preparation for students who wish to pursue a bachelor’s degree in social work. The program is designed to prepare students for transfer to four-year social work programs.

**Program Learning Outcomes**

Upon successful completion of this program, students will be able to:

- Discuss major theories and concepts of political science.
- Analyze political issues and formulate solutions.

**Associate Degree for Transfer**

This degree offers lower division preparation for students who wish to pursue a bachelor’s degree in social work. The program is designed to prepare students for transfer to four-year social work programs.
Sociology for Transfer degree:

This degree program is designed to provide students with a broad understanding of human interaction, social processes, social structures, and tools of sociological investigation. Students completing this degree may be interested in pursuing careers in teaching, research, social work, and other behavioral science professions. The following is required for the AA-T in Sociology for Transfer degree:

1. Minimum of 60 semester or 90 quarter CSU-transferable units.
2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
3. Minimum of 18 semester or 27 quarter units in the major.
4. A grade of “C” or better in all courses required for the major.
5. Certified completion of the California State University General Education (CSU GE) Breadth pattern OR the Intersegmental General Education Transfer Curriculum (IGETC) pattern; see Degree Requirements and Transfer Information section for more information. Note: If following IGETC, IGETC-CSU must be followed for admission to a CSU.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Evaluate society and make appropriate suggestions for improvement directed at social change.
- Analyze and interpret the diversity of social experience using a sociological perspective.
- Engage in critical thinking, analysis and problem solving about social issues.
- Employ theoretical and methodological approaches to sociological observations of everyday life.
- Evaluate the implications of multicultural diversity and global interdependence.

Associate in Arts Degree Requirements:

**Core Curriculum:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 160</td>
<td>Elementary Statistics</td>
<td>4</td>
</tr>
<tr>
<td>PSY 138</td>
<td>Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 120</td>
<td>Introductory Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 125</td>
<td>Marriage, Family and Alternative Lifestyle</td>
<td>3</td>
</tr>
<tr>
<td>SOC 130</td>
<td>Contemporary Social Problems</td>
<td>3</td>
</tr>
</tbody>
</table>

**List A: Select one of the following:**

| ANTH 120       | Cultural Anthropology        | 3     |
| PSY 120        | Introductory Psychology      | 3     |

**Total Units for Major** 19

**Total Transferable Elective Units** 37-39

**Total Units for Degree** 60

Please note: SDSU accepts this degree for students transferring into Sociology B.A.

4. Complete a minimum of 18 units in an Area of Emphasis (listed below).
5. Complete a minimum of 60 degree applicable CSU transferable semester units.
6. Earn a cumulative GPA of 2.0 in all college course work completed.
7. Meet Cuyamaca College residence requirements for graduation (see Admission Information).

**OR**

II. Intersegmental General Education Transfer Curriculum (IGETC) for CSU or UC

1. Complete IGETC Certification (see Degree Requirements and Transfer Information section).
2. Earn a grade of “C” or better in all IGETC courses.
3. Credit earned through external examinations, i.e., AP, will be applied in accordance with Cuyamaca College policies. Please note: This may be different than how the external exam is used on an IGETC certification.
4. Complete a minimum of 18 units in an Area of Emphasis (listed below).
5. Complete a minimum of 60 degree applicable UC transferable semester units for UC University Studies.
6. Earn a cumulative GPA of 2.0 in all college course work completed.
7. Meet Cuyamaca College residence requirements for graduation (see Admission Information).

**AND**

III. Area of Emphasis

A. Business and Economics
B. Communication and Language Arts
C. Humanities and Fine Arts
D. Science and Mathematics
E. Social and Behavioral Sciences

While 18 units are required in a specific area to meet the requirements of the degree, it is strongly recommended that as many lower division preparation for the major courses as possible be completed at the community college prior to transfer. Some baccalaureate majors and four-year institutions require a higher GPA than is necessary for the associate degree. Courses that are not UC-transferable will not be used in the UC University Studies Area of Emphasis Degrees. Completion of the University Studies degree does not guarantee admission to a four-year institution.

Courses for the Associate in Arts in University Studies with an Emphasis in Social and Behavioral Sciences focus on the study and understanding of human behavior. Students will evaluate and interpret human societies; the institutions, organizations, and the groups that form them; the ways in which individuals and groups relate to one another; and various approaches and methodologies of the disciplines. Students completing this area may be interested in the following baccalaureate majors: anthropology, child development, education, history, nutrition, political science, psychology, social work, and sociology.

Students must complete a minimum of six units in Social Science and six units in Behavioral Science. The remaining six units may be taken from either category.
Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Describe general principles of the political institutions and government of the United States.
- Demonstrate an understanding and appreciation of social, political, and economic institutions within a historical perspective.
- Evaluate the ways people act and interact in cultures, societies and social subgroups.
- Assess how social issues are influenced by geographical and historical processes.

- Apply knowledge of social and behavioral sciences theories and scientific methods in an assessment of real-world problems.

Social Science

ANTH 120, 140
BIO 134
ECON 110, 120, 121
GEOG 106, 130
HIST 100, 101, 105, 106, 108, 109, 118, 119, 122, 123, 130, 131, 132, 180, 181, 275, 276, 277
POSC 120, 121, 124, 130, 140, 170*
SOC 114*, 120, 125, 130, 140*

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Accounting. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

BOOKKEEPING CERTIFICATE

This certificate is for students who need very specific training in the area of bookkeeping/accounting, either to obtain the necessary skills for an entry level office position, or to provide technical competence for advancement within the office environment.

Program Learning Outcomes

Upon successful completion of this certificate, students will be able to:

- Use bookkeeping concepts, principles, standards and processes.
- Demonstrate information technology skills as they apply to today’s business environment to solve business problems and to communicate those solutions.
- Use personal and ethical frameworks to respond to ethical dilemmas.

Certificate Requirements:

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
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<tbody>
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<td>BOT 123-125</td>
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</tr>
<tr>
<td>BOT 174</td>
<td>Computer Concepts and Applications</td>
<td>3</td>
</tr>
<tr>
<td>BUS 109</td>
<td>Elementary Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 120</td>
<td>Financial Accounting</td>
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</tr>
<tr>
<td>BUS 121</td>
<td>Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 128</td>
<td>Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>BUS 129</td>
<td>Payroll Accounting and Business Taxes</td>
<td>2</td>
</tr>
<tr>
<td>BUS 176</td>
<td>Computerized Accounting Applications</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Required: 20-21

Note: BUS 109 may be taken instead of BUS 120 for the Bookkeeping certificate only.

Certificate of Achievement

Students who complete the requirements above qualify for a Certificate in Bookkeeping. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 120</td>
<td>Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 121</td>
<td>Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 122</td>
<td>Intermediate Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 124</td>
<td>Auditing</td>
<td>3</td>
</tr>
<tr>
<td>BUS 125</td>
<td>Business Law, Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 128</td>
<td>Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>BUS 150</td>
<td>Individual Income Tax Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 162</td>
<td>Analysis of Financial Statements</td>
<td>3</td>
</tr>
<tr>
<td>BUS 176</td>
<td>Computerized Accounting Applications</td>
<td>2</td>
</tr>
<tr>
<td>CIS 110</td>
<td>Principles of Information Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Required: 33

Plus General Education Requirements

Certificate of Achievement

Students who complete the requirements above qualify for a Certificate in Bookkeeping. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 120</td>
<td>Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 121</td>
<td>Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 122</td>
<td>Intermediate Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 124</td>
<td>Auditing</td>
<td>3</td>
</tr>
<tr>
<td>BUS 125</td>
<td>Business Law, Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 128</td>
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<td>3</td>
</tr>
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</tr>
<tr>
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</tr>
<tr>
<td>CIS 110</td>
<td>Principles of Information Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Required: 33

Plus General Education Requirements
Associate in Science Degree Requirements:

Core Curriculum:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 120</td>
<td>Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 121</td>
<td>Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 125</td>
<td>Business Law: Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>ECON 120</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 121</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
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</table>

List A: Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>MATH 160</td>
<td>Elementary Statistics</td>
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<tr>
<td>MATH 178</td>
<td>Calculus for Business, Social and Behavioral Sciences</td>
<td>4</td>
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</tbody>
</table>

List B: Select two of the following:

<table>
<thead>
<tr>
<th>Course</th>
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<th>Units</th>
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</thead>
<tbody>
<tr>
<td>BUS 128</td>
<td>Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>CIS 110</td>
<td>Principles of Information Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

Any course from List A not selected above* 4

Total Units for Major (9 units may be double-counted with GE) 28-29

Total Units for CSU GE Breadth or IGETC-CSU 37-39

Total Transferable Elective Units 17

Total Units for Degree 60

*Students planning to transfer to SDSU are strongly encouraged to complete Math 160, Math 176, and BUS 129.

Please note: SDSU accepts this degree for students transferring into Business Administration (Financial Services) or Business Administration (General) majors.

II. BUSINESS ADMINISTRATION

This degree program is designed to provide students who choose to work toward a bachelor’s degree a well-balanced introduction to a professional career in business. The curriculum fulfills the lower division requirements for most majors in the School of Business Administration at San Diego State University and is typical of requirements at other four-year schools. For specific requirements, transfer students should consult the catalog of their selected institution.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Apply accounting concepts and methods to interpret financial statements for evaluating the financial position and performance of organizations.
- Recognize and appropriately respond to ethical and legal concerns relating to human resource and organizational management.
- Identify and analyze business problems or opportunities and effectively communicate recommendations for courses of actions.

CAREER OPPORTUNITIES

Administrative Assistant
Bookkeeper
* Budget Consultant
Buyer
Conciliator
* Credit Analyst
Employment Interviewer
Hospital Administrator
Sales Agent
* Trust Officer
* Bachelor Degree or higher required

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 120</td>
<td>Financial Accounting</td>
<td>4</td>
</tr>
<tr>
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<td>Managerial Accounting</td>
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<tr>
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<tr>
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<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 121</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 160</td>
<td>Elementary Statistics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 178</td>
<td>Calculus for Business, Social and Behavioral Sciences</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Required 32

Recommended Elective: BUS 156

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Business Administration. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

III. BUSINESS–GENERAL

This degree program is designed to develop and foster those skills and understandings which can be utilized for employment in an increasingly challenging business environment. The curriculum provides students with a broad preparation for a career in business. Business courses are included which provide a solid background for future promotion in a chosen occupational area. The degree is designed for students who do not plan to transfer to a four-year college or university.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Apply accounting concepts and methods to interpret financial statements for evaluating the financial position and performance of organizations.
- Recognize and appropriately respond to ethical and legal concerns relating to human resource and organizational management.
- Identify and analyze business problems or opportunities and effectively communicate recommendations for courses of actions.

CAREER OPPORTUNITIES

Administrative Assistant
Bookkeeper
* Budget Consultant
Buyer
Conciliator
* Credit Analyst
Employment Interviewer
Hospital Administrator
Sales Agent
* Trust Officer
* Bachelor Degree or higher required

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
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<tr>
<td>BUS 121</td>
<td>Managerial Accounting</td>
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<tr>
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</tr>
<tr>
<td>BUS 129</td>
<td>Business Law: Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 128</td>
<td>Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>BUS 195</td>
<td>Principles of Money Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Required 24-26

Plus General Education Requirements

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Business–General. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

IV. CRAFT INDUSTRIES

Certificate of Specialization

The Craft Industries program is designed to provide those entering this highly charged business environment with the basic skills to make it happen. Each student will build their business from the bottom up by understanding the standards and innovative solutions to the practical components of establishing any operational business model. The program is unique; it incorporates the traditional entrepreneurship theory mixed with down-to-earth tools and applications, while keeping in sight its ultimate goal of providing a means for the student to launch their craft business.

Program Learning Outcomes

Upon successful completion of this certificate, students will be able to:

- Demonstrated understanding of the Craft Industry’s environment and its relationship to the many facets of entrepreneurship.
- Demonstrated competency in management practices, in particular business’s role in achieving sustainability, and ethical and civic responsibility.

ENTREPRENEURSHIP OPPORTUNITIES

Small businesses that include:
- Breweries and Brewpubs
- Coffee Shops and Roasters
- Artisan Foods
- Cultivation and Production Management
- Handmade Textiles
- Manufacturing and Production
- Material Suppliers for Artisans

Certificate Requirements:

Core Curriculum:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 112</td>
<td>Craft Entrepreneur</td>
<td>2</td>
</tr>
<tr>
<td>BUS 111</td>
<td>Entrepreneurship: Starting and Developing a Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 125</td>
<td>Business Law: Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 109</td>
<td>Elementary Accounting</td>
<td>3</td>
</tr>
</tbody>
</table>

Select at least four units from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOT 107</td>
<td>Office Systems and Procedures</td>
<td>2</td>
</tr>
<tr>
<td>BOT 114</td>
<td>Essential Word</td>
<td>1</td>
</tr>
<tr>
<td>BOT 115</td>
<td>Essential Excel</td>
<td>1</td>
</tr>
<tr>
<td>BOT 117</td>
<td>Essential PowerPoint</td>
<td>1</td>
</tr>
<tr>
<td>BOT 132</td>
<td>Google Applications for Business</td>
<td>3</td>
</tr>
<tr>
<td>BOT 151</td>
<td>Using Microsoft Outlook</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Required 15
BUSINESS OFFICE TECHNOLOGY

I. BUSINESS OFFICE TECHNOLOGY
This degree program prepares students for employment in today’s business offices which are technology intensive. The curriculum is also appropriate for those wishing to update current skills. Emphasis is on the computerized office and development into supervisory positions.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Explain the basic language and concepts within the field of business office technology.
• Use computer input devices (e.g., keyboard and mouse) to properly and efficiently create and edit documents in word processing, spreadsheet, and presentation programs such as Word, Excel, and PowerPoint, and electronic communications such as email.

II. ADMINISTRATIVE ASSISTANT
Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Explain the basic language and concepts within the field of business office technology.
• Use computer input devices (e.g., keyboard and mouse) to properly and efficiently create and edit documents in word processing, spreadsheet, and presentation programs such as Word, Excel, and PowerPoint, and electronic communications such as email.

Associate in Science Degree Requirements:
Course Title Units
BOT 102A Business Information Worker 3

Select at least six units from the following:
BOT 119 Windows for the Information Worker 2
BOT 123-125 Comprehensive Excel Levels I-III 3
BOT 223-225 Office Work Experience 1-3
BUS 109 Elementary Accounting 3
or
BUS 120 Financial Accounting 4
BUS 156 Principles of Management 3
BUS 176 Computerized Accounting Applications 2

Total Required 24
Plus General Education Requirements

Certificate of Achievement
Students who complete only the major requirements above qualify for a Certificate in Business Office Technology. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

III. EXECUTIVE ASSISTANT
Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Explain the basic language and concepts within the field of business office technology.
• Use computer input devices (e.g., keyboard and mouse) to properly and efficiently create and edit documents in word processing, spreadsheet, and presentation programs such as Word, Excel, and PowerPoint, and electronic communications such as email.

Associate in Science Degree Requirements:
Course Title Units
BOT 120-122 Comprehensive Word Levels I-III 3
BOT 124-125 Comprehensive Excel Levels I-III 3
BOT 126-128 Comprehensive Access Levels I-III 3
BOT 129-130 Comprehensive PowerPoint Levels I-II 2
BOT 151 Using Microsoft Outlook 1
BOT 201 Advanced Keyboarding/Document Processing 3
BOT 223-225 Office Work Experience 1-3
BUS 128 Business Communication 3

Select at least three units from the following:
BOT 132 Google Applications for Business 3
BUS 109 Elementary Accounting 3
BUS 110 Introduction to Business 3
BUS 115 Human Relations in Business 3
BUS 120 Financial Accounting 4
BUS 125 Business Law: Legal Environment of Business 3

Select at least three units from the following:
BOT 103ABC Building Keyboarding Skill I, II, III 5
BOT 119 Windows for the Information Worker 2
BOT 133 Adobe Acrobat for the Workplace 1
BOT 150 Using Microsoft Publisher 1

Total Required 25-28
Plus General Education Requirements

Certificate of Achievement
Students who complete only the major requirements above qualify for a Certificate in Executive Assistant. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

CERTIFICATE OF ACHIEVEMENT

1. BUSINESS INFORMATION WORKER
The Business Information Worker Certificate of Achievement is a job readiness pathway or certificate for office workers, developed in conjunction with local employers. Enrolled students are prepared in a broad range of entry-level office skills and applications which promote success in a variety of office environments. Essential components of the curriculum include a solid foundation in Microsoft Windows and Office, as well as critical thinking, problem solving, and interpersonal skills.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Use computer input devices to properly and efficiently create and edit documents in word processing, spreadsheet programs, such as Word and Excel, and electronic communications such as email.
II. FRONT OFFICE RECEPTIONIST
This certificate would provide an entry-level employment opportunity for a student that finishes the following courses. These skills are aimed at a student who is seeking a front office receptionist-related position in an office. This certificate prepares a beginning student to work in a job that requires basic keyboarding skills, a basic knowledge of filing, and basic office procedures necessary for meeting and greeting the public in person, by telephone, and electronically.

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Explain the basic concepts of business office procedures relevant to an entry-level front office receptionist position.
• Appropriately use the vocabulary specific to an entry-level front office receptionist position.
• Use computer input devices, e.g., keyboard or mouse, to efficiently and competently use the software specific to the relevant field of business.

Certificate Requirements:
Course Title Units
BOT 100 Basic Keyboarding 1
or
BOT 103AB Building Keyboarding Skill I-II 1
BOT 104 Filing and Records Management 1
BOT 107 Office Systems and Procedures 2
BOT 151 Using Microsoft Outlook 1
BOT 174 Computer Concepts and Applications 3
Total Required 8-9

III. OFFICE ASSISTANT LEVEL I
This certificate prepares students for positions that require keyboarding skills, basic knowledge of filing, and basic computer skills. It is designed for students with no prior computer training and who lack general office background and experience. Upon completion, students will qualify for positions as data entry clerks or other entry level office clerical positions.

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Explain the basic language and concepts within the field of business office technology.
• Use computer input devices (e.g., keyboard and mouse) to properly and efficiently create and edit documents in word processing, spreadsheet, and presentation programs such as Word, Excel, and PowerPoint, and electronic communications such as email.

Certificate Requirements:
Course Title Units
BOT 101AB Keyboarding/Document Processing I-II 3
or
BUS 109 Elementary Accounting 3
BUS 120 Financial Accounting 4
or
BUS 176 Computerized Accounting Applications 2
Total Required 8-9

IV. OFFICE ASSISTANT LEVEL II
This certificate is designed for students who have completed the Office Assistant Level I certificate or have the equivalent in keyboarding and computer skills. It prepares students for advancement in office careers in which knowledge of Microsoft Office applications is required.

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Explain the basic language and concepts within the field of business office technology.
• Use computer input devices (e.g., keyboard and mouse) to properly and efficiently create and edit documents in word processing, spreadsheet, and presentation programs such as Word, Excel, and PowerPoint, and electronic communications such as email.

Certificate Requirements:
Course Title Units
BOT 102AB Intermediate Keyboarding/Document Processing I-II 3
or
BOT 107 Office Systems and Procedures 2
BOT 114 Essential Word 1
BOT 115 Essential Excel 1
BOT 116 Essential Access 1
BOT 117 Essential PowerPoint 1
Total Required 9

V. OFFICE PROFESSIONAL
This certificate is designed for students interested in entry-level positions in a broad spectrum of office environments. Utilizing a short-term, intensive format, students are provided with the basic skills necessary to be productive employees. The curriculum provides the foundation for further study and advancement in the clerical field, which is one of the largest employment areas in our information processing society.

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Explain the basic language and concepts within the field of business office technology.
• Use computer input devices (e.g., keyboard and mouse) to properly and efficiently create and edit documents in word processing, spreadsheet, and presentation programs such as Word, Excel, and PowerPoint, and electronic communications such as email.

Certificate Requirements:
Course Title Units
BOT 100 Basic Keyboarding 1
or
BOT 101AB Keyboarding/Document Processing I-II 3
or
BOT 102AB Intermediate Keyboarding/Document Processing I-II 3
or
BOT 107 Office Systems and Procedures 2
BOT 114 Essential Word 1
BOT 115 Essential Excel 1
BOT 223 Office Work Experience 1
or
BOT 224 Office Work Experience 2
BUS 110 Introduction to Business 3
BUS 128 Business Communication 3
Total Required 12-15
VI. OFFICE SOFTWARE SPECIALIST LEVEL I

This certificate is designed for students interested in working in an administrative support capacity who need working knowledge of word processing, electronic spreadsheet, database and presentation software. These courses may also be applied to the Office Assistant Level II certificate.

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:

- Explain the basic language and concepts within the field of business office technology.
- Use computer input devices (e.g., keyboard and mouse) to properly and efficiently create and edit documents in word processing, spreadsheet, and presentation programs such as Word, Excel, and PowerPoint, and electronic communications such as email.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOT 100 Basic Keyboarding</td>
<td>1</td>
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<tr>
<td>BOT 104 Essential Word</td>
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<tr>
<td>BOT 120 Comprehensive Word, Level I</td>
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<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>BOT 120-121 Comprehensive Word, Levels I-II</td>
<td>2</td>
</tr>
<tr>
<td>BOT 115 Essential Excel</td>
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<td>or</td>
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<tr>
<td>BOT 123-124 Comprehensive Excel, Levels I-II</td>
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</tr>
<tr>
<td>BOT 116 Essential Access</td>
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<td>or</td>
<td></td>
</tr>
<tr>
<td>BOT 126-127 Comprehensive Access, Levels I-II</td>
<td>2</td>
</tr>
<tr>
<td>BOT 117 Essential PowerPoint</td>
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<td>or</td>
<td></td>
</tr>
<tr>
<td>BOT 129-130 Comprehensive PowerPoint, Levels I-II</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Required: 12 units

VII. OFFICE SOFTWARE SPECIALIST LEVEL II

This certificate is designed for students interested in working in an administrative support capacity who need working knowledge of word processing, electronic spreadsheet, database and presentation software as well as software integration techniques. Students who complete the certificate may continue taking courses to earn the Executive Assistant Certificate of Achievement.

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:

- Explain the basic language and concepts within the field of business office technology.
- Use computer input devices (e.g., keyboard and mouse) to properly and efficiently create and edit documents in word processing, spreadsheet, and presentation programs such as Word, Excel, and PowerPoint, and electronic communications such as email.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>BOT 100 Basic Keyboarding</td>
<td>1</td>
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<tr>
<td>BOT 104 Essential Word</td>
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<tr>
<td>BOT 120 Comprehensive Word, Level I</td>
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<td>or</td>
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</tr>
<tr>
<td>BOT 114 Essential Word</td>
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</tr>
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<td>BOT 121 Comprehensive Word, Level II</td>
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<td>or</td>
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</tr>
<tr>
<td>BOT 122 Comprehensive Word, Level III</td>
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</tr>
<tr>
<td>BOT 123 Comprehensive Excel, Level I</td>
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<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>BOT 115 Essential Excel</td>
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</tr>
<tr>
<td>BOT 124 Comprehensive Excel, Level II</td>
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<td>or</td>
<td></td>
</tr>
<tr>
<td>BOT 125 Comprehensive Excel, Level III</td>
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</tr>
<tr>
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<td></td>
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<tr>
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<td>or</td>
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<td>or</td>
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Total Required: 21 units

Associate in Science Degree Requirements:

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<td>ECON 120 Principles of Macroeconomics</td>
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<tr>
<td>ECON 121 Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 160 Elementary Statistics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 178 Calculus for Business, Social and Behavioral Sciences</td>
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<tr>
<td>MATH 180 Analytic Geometry and Calculus I</td>
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List A: (Select 1 course)

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>BUS 120 Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 121 Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 128 Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>CIS 110 Principles of Information Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

List B: (Select 1-2 courses; 3-4 units)

Any List A course not used 3-4 units

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 109 Elementary Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 120 Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 110 Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 111 Entrepreneurship: Starting and Developing a Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 125 Business Law</td>
<td></td>
</tr>
<tr>
<td>BUS 128 Business Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two of the following:

- BUS 112 Craft Entrepreneur
- BUS 115 Human Relations in Business
- BUS 156 Principles of Management
- BUS 176 Computerized Accounting

<table>
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<tr>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>BUS 110 Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 112 Craft Entrepreneur</td>
<td>2</td>
</tr>
<tr>
<td>BUS 115 Human Relations in Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 156 Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 176 Computerized Accounting</td>
<td>2</td>
</tr>
</tbody>
</table>

Select at least three units from the following:

<table>
<thead>
<tr>
<th>Course Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>BOT 109 Elementary Word</td>
<td>1</td>
</tr>
<tr>
<td>BOT 115 Essential Excel</td>
<td>1</td>
</tr>
<tr>
<td>BOT 116 Essential Access</td>
<td>1</td>
</tr>
<tr>
<td>BOT 117 Essential PowerPoint</td>
<td>1</td>
</tr>
<tr>
<td>BOT 130 Comprehensive PowerPoint, Level II</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Required: 22-25 units

Plus General Education Requirements

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Entrepreneurship—Small Business Management. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Associate Degree for Transfer™

ECONOMICS FOR TRANSFER (AA-T)

The AA-T in Economics for Transfer provides a broad exposure to the field of economics. Students will learn about the factors that determine the production, distribution and consumption of goods and services. They will come to understand the behavior and interactions of economic agents and how economies work. This major prepares students to transfer to a California State University, where a baccalaureate degree may be earned in Economics or a closely related field.

Program Learning Outcomes
Upon completion of this program, students will be able to:

- Use microeconomic and macroeconomic models to explain demand, supply, and changes in output, employment, inflation and growth;
- Understand and apply core economic concepts such as opportunity cost, the role of the market; present value; exchange rates; marginal utility; the importance of incentives, and the connections between economic interests of individuals and society.

Associate in Arts for Transfer Degree

Requirements:

List Required: 22-25 units

List A: (Select 1 course)

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 120 Financial Accounting</td>
<td>4</td>
</tr>
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</tr>
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<td>BUS 128 Business Communication</td>
<td>3</td>
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</table>

List B: (Select 1-2 courses; 3-4 units)

Any List A course not used 3-4 units

<table>
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<tr>
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</tbody>
</table>

Total Required: 22-25 units

Plus General Education Requirements

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Entrepreneurship—Small Business Management. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

ENTREPRENEURSHIP— SMALL BUSINESS MANAGEMENT

This degree program provides a course of study for students who are interested in developing an appreciation and understanding of the functional areas within the small business environment. The degree provides a working knowledge of small business operations to both the prospective business person as well as the owner/manager of an existing business, and is co-sponsored by the Small Business Administration.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Recognize and appropriately respond to ethical and legal concerns relating to human resource and organizational management.
- Identify and analyze business problems or entrepreneurial opportunities and effectively communicate recommendations for courses of action.
- Demonstrate an understanding of the requirements to start a new venture, including the basics of leadership, team building, finance, marketing and management.

CAREER OPPORTUNITIES

Administrative Assistant
Assistant Manager
Bookkeeper
Small Business Owner/Manager

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
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<tr>
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Select two of the following:

- BUS 112 Craft Entrepreneur
- BUS 115 Human Relations in Business
- BUS 156 Principles of Management
- BUS 176 Computerized Accounting

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<td>2</td>
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</table>

Select at least three units from the following:

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</tbody>
</table>

Total Required: 22-25 units

Plus General Education Requirements

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Entrepreneurship—Small Business Management. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.
GENERAL STUDIES: BUSINESS AND TECHNOLOGY

The Associate Degree in General Studies with an Area of Emphasis provides an opportunity for students to design a program of study meaningful and appropriate to their own needs and academic interests. The degree includes general education and a focused area of study. Students may choose to earn this degree for preparation for employment or for personal development.

REQUIREMENTS
To meet the General Studies degree requirements, a student must complete the following:

I. AS or AA General Education Requirements (see Degree Requirements and Transfer Information section)

AND

II. Areas of Emphasis
Choose a minimum of 18 units from one Area of Emphasis:

A. Business and Technology
B. Communication and Language Arts
C. Humanities and Fine Arts
D. Lifelong Health, Well-Being and Self-Development
E. Science and Mathematics
F. Social and Behavioral Sciences

The Associate in Science in General Studies with an Emphasis in Business and Technology will be awarded to students upon completion of general education degree requirements and 18 units in this area. These courses emphasize the study of business transaction theory and practice, the operations and strategies of business decisions, legal concepts, and the place of business in the American and global economy as a whole. Students will apply mathematical and quantitative reasoning skills to the discipline’s methodologies, as well as evaluate and interpret basic economic principles and theories related to performance and specific economic sectors. Students must take a minimum of three units from each area. The remaining units may be taken from any area.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Contribute to an effective and ethical organization.
• Use information technology to support effective decision making in the business organization.
• Analyze markets, economic environments and associated trends at the macro and micro levels.
• Express and apply quantitative information in order to make sound decisions and solve problems in the business environment.

Business
BUS 109, 110, 111, 115, 120, 121, 122, 124, 125, 128, 129, 150, 155, 156, 161, 162, 176, 195

Computer and Information Science
CIS 105, 110, 120, 121, 125, 140, 162, 190, 191, 201, 202, 203, 204, 205, 211, 213, 215, 219, 261, 262, 263, 290, 291

Economics
ECON 110, 120, 121

Mathematics
MATH 160, 178, 180

MANAGEMENT

This degree program is designed to provide students with the skills necessary to be successful as a manager in today’s demanding organizational climate. The curriculum is beneficial to men or women who aspire to mid-level or higher management positions in any type of organization including business, government and service organizations.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Recognize and appropriately evaluate the ethical and legal concerns inherent in various business practices.
• Identify the differences in leadership and management theories and how they facilitate the overall effectiveness of domestic and multinational business operations.
• Identify and assess business problems from a subordinate and managerial perspective.
• Understand, analyze business problems or entrepreneurial opportunities and effectively communicate recommendations for courses of actions.

CAREER OPPORTUNITIES
* Bank Officer
* Claim Adjuster
* Computer Operations Supervisor
* Director, Research and Development
* Employment Interviewer
* Financial Planner
* Hospital Administrator
* Import-Export Agent
* Management Trainee
* Management Consultant
* Office Manager
* Stock Broker
* Teacher, College
* Bachelor Degree or higher required
† Bachelor Degree normally recommended

Associate in Science Degree Requirements:
Course Title Units
BUS 115 Human Relations in Business 3
BUS 120 Financial Accounting 4
BUS 125 Business Law: Legal Environment of Business 3
BUS 128 Business Communication 3
BUS 155 Human Resources Management 3
BUS 156 Principles of Management 3
ECON 110 Economic Issues and Policies 3 or
ECON 120 Principles of Macroeconomics 3

Select two of the following:
BTT 123-125 Comprehensive Excel Levels I–III 3
BTT 174 Computer Concepts and Applications 3
BUS 176 Computerized Accounting Applications 2
CIS 110 Principles of Information Systems 4

Select a minimum of three units of the following:
BUS 110 Introduction to Business 3
BUS 121 Managerial Accounting 4
BUS 161 Business Internship 1-3
BUS 195 Principles of Money Management for Success 3
COMM 122 Public Speaking 3-4

Total Required 30-33
Plus General Education Requirements

Certificate of Achievement
Students who complete only the major requirements above qualify for a Certificate in Management. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

PARALEGAL STUDIES

The legal profession has evolved, like the medical profession, into a profession of specialties. Based on this development, lawyers need qualified assistants to better help them provide legal services to their clients. Paralegals are trained, professional technicians able to provide this needed legal assistance.

This degree program is specifically designed to prepare and provide students with the analytical skills and written abilities necessary to assist attorneys in the practice of law. The technical curriculum provides an opportunity to gain specialized skills in specific areas of law. The large curriculum offering also allows practicing paralegals to attend college refresher or new skills development courses.

This program does not prepare students for law school or the practice of law. Please note: Paralegals may not provide legal services directly to the public, except as permitted by law.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Apply the research, analytical skills and college-level writing abilities necessary to assist attorneys in the practice of law.
• Conduct oneself in an ethical and professional manner when confronted with a law office related conflict scenario.

CAREER OPPORTUNITIES
Claim Examiner
Compensation and Benefits Manager
Compliance and Enforcement Inspector
† Contract Consultant
Forms and Procedures Specialist
Freelance Paralegal
* Labor Relations Specialist
Law Clerk
Legal Aide
Legal Assistant
Legal Research Assistant
Legal Technician
Occupational Safety and Health Worker
Paralegal
Patent Agent
Title Examiner
* Bachelor Degree or higher required
† Bachelor Degree normally recommended

It is recommended that incoming students complete C grade or higher in ESL 2B or placement into ENGL 120 or equivalent prior to taking any Paralegal Studies classes.
ASSOCIATE IN SCIENCE DEGREE REQUIREMENTS:

Course Title Units

BOT 120-121 Comprehensive Word Levels I–II 2
BOT 122 Comprehensive Word, Level III 1

or

BOT 151 Using Microsoft Outlook 1

or

BOT 115 Essential Excel 1
BUS 125 Business Law: Legal Environment of Business 3

PARA 100 Introduction to Paralegal Studies 3
PARA 110 Civil Litigation Practice and Procedure 3
PARA 130 Legal Research and Writing 3
PARA 132 Computer Assisted Legal Research (CALR) 3

PARA 135 Bankruptcy Law 3

Select at least six units from the following:

PARA 120 Administrative Law 3
PARA 125 Business Organizations 1
PARA 140 Criminal Law and Procedures 3
PARA 145 Estate Planning and Administration of Estates 3
PARA 150 Family Law 3
PARA 160 Personal Injury 1
PARA 170 Worker's Compensation 1
PARA 175 Electronic Discovery: Practice and Procedure 1

PARA 250* Internship 1-3

Total Required 21

Plus General Education Requirements

*Student must complete 18 units within the major to be eligible for this course.

Recommended Elective: BUS 128

GENERAL EDUCATION REQUIREMENTS FOR THE PARALEGAL STUDIES DEGREE:

AREA A–LANGUAGE AND RATIONALITY

(Minimum of 6 semester units)

One course from each area:

1. Written Communication
   ENGL 120

2. Oral Communication and Analytical Thinking
   COMM 120, 122, 130, 137, 145
   ENGR 100
   MATH 110, 120, 125, 160, 170, 175, 176, 178, 180, 245, 280, 281, 284
   PHIL 125, 130
   PSY 215

AREA B–NATURAL SCIENCES

(Minimum of 4 semester units)

A course that includes a laboratory (laboratory courses are underlined):
   ANTH 130
   ASTR 110, 112
   BIO 112, 115, 122, 130, 131, 140, 152, 230, 240
   CHEM 102, 115*, 116, 120*, 141
   GEOG 120, 121
   GOL 104, 110, 111
   OCEA 112, 113
   PHYC 110, 120, 130, 131, 190, 200, 210

*Students will not receive credit for more than one of the following courses: CHEM 115, 120.

AREA C–HUMANITIES

(Minimum of 3 semester units)

One of the following courses:
   ARAM 120, 121, 220
   ARBC 120, 121, 145, 220, 221, 250, 251
   ART 100, 120, 124, 129, 140, 141, 143, 144, 145, 146, 148
   ASL 120, 121, 140, 220, 221
   ENGL 122, 201, 202, 214, 217, 221, 222, 231, 232, 270, 271
   FREN 120, 121, 220, 221, 250, 251
   HIST 100, 101, 105, 106
   HUM 110, 115, 116, 120, 140, 155
   ITAL 120, 121, 220
   MUS 110, 111, 115, 116, 117
   NAKY 120, 121, 220
   PHIL 110, 115, 117, 140, 160, 170
   RELG 120, 130, 160, 170
   SPAN 120, 121, 141, 145, 220, 221, 250, 251
   THTR 110

AREA D–SOCIAL AND BEHAVIORAL SCIENCES

(Minimum of 3 semester units)

One of the following courses:
   ANTH 120
   CD 115, 125, 131, 145
   COMM 110, 124
   ECON 110, 120, 121
   GEOG 106, 130
   HIST 100, 101, 105, 106
   PSY 120, 125, 134, 138, 140, 150, 170
   POSC 120, 121, 124, 130, 140

ADDITIONAL REQUIREMENTS:

(Minimum 6 semester units)

Two additional courses from two different areas:

- Area B - Natural Sciences
- Area C - Humanities
- Area D - Social and Behavioral Sciences

DEGREE REQUIREMENTS:

Cuyamaca College will confer the Degree of Associate in Science in Paralegal Studies upon students who successfully complete the following requirements:

1. A minimum of 60 semester units of college work.
2. Competency Requirements
   A. Completion of ENGL 120 with a grade of "C" or better or "P"*
   B. Completion of MATH 110 or a higher numbered mathematics class, or a statistics course from another discipline that has intermediate algebra as a prerequisite, with a grade of "C" or better or a grade of "P"* or completion of assessment placing into a class higher than MATH 110.
3. Exercise Science Degree Requirements

Two activity courses in exercise science are required for graduation from Cuyamaca College. These courses are marked with an asterisk in the Course Descriptions section.

A. If medical reasons necessitate exclusion from exercise science, a medical statement must be on file with the Admissions and Records Office. Adaptive exercise science classes are available.

B. Veterans who have completed at least one year of honorable active service will receive up to three units of credit for exercise science which will satisfy the activity requirement for graduation. To receive credit for military service, a DD-214 and appropriate military records must be submitted to the Admissions and Records Office.

4. Achievement of a "C" average (2.0 GPA) in all college work counted toward general education requirements.
5. Achievement of a "C" grade or better in all courses counted toward the major. (P/NP grading not accepted for the major.)
6. A maximum of 12 "P"* semester units taken in regular course work at this institution may be counted toward the 60 semester units required for graduation but shall not be included as part of the requirements for the major.
7. A minimum of 12 semester units of Legal Specialty courses must be completed at Cuyamaca College.

*A grade of "P" (Pass) represents a "C" grade or better.

For more information regarding degree requirements, see Degree Requirements and Transfer Information section.

REAL ESTATE

I. REAL ESTATE

This degree program is designed to prepare students for employment in real estate or related fields. It also meets the educational requirements for the California Real Estate Broker's License and helps prepare both the salesperson and broker for the state examination. Most real estate classes also meet educational requirements for appraisal licensing.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Differentiate and describe the essential elements and legal effects of various real estate documents, steps in an escrow, real estate financing and investment, and real estate valuation techniques.
- Differentiate and describe how to conduct oneself in a professional and ethical manner in any real estate office.

CAREER OPPORTUNITIES

- Agent
- Appraiser
- Builder/Developer
- Economist
- Escrow Officer/Trust Manager
- Investor
- Lender/Financial Institution
- Property Manager
- Salesperson
- Title Officer
- *Bachelor Degree or higher required

†Office of Real Estate Appraisal License required

Associate in Science Degree Requirements:

Course Title Units

†

‡

* Bachelor Degree or higher required

†Appraiser

‡Appraiser

††Appraiser

Office of Real Estate Appraisal License required.

††Appraiser
Select three of the following including one Accounting or Economics course:

BUS 110  Introduction to Business 3
BUS 120  Financial Accounting 4
ECON 110  Economic Issues and Policies 3
ECON 120  Principles of Macroeconomics 3
ECON 121  Principles of Microeconomics 3
RE 197  Real Estate Economics 3
RE 201  Real Estate Property Management 3
RE 250*  Real Estate Internship 1-4
RE 294  Advanced Real Estate Appraisal 3

Elective (select one elective from below) 3

Total Required 7-11

Electives:

BUS 125  Business Law: Legal Environment of Business 3
RE 125  Escrow Procedures I 3
RE 204  Real Estate Office Administration 3
RE 292  Mortgage Loan Brokering and Lending 3

Total Required 22-26

Plus General Education Requirements

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Real Estate. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

II. BROKER’S LICENSE

Program Learning Outcomes

Upon successful completion of this certificate, students will be able to:

• Differentiate and describe the essential elements and legal effects of various real estate documents, steps in an escrow, real estate financing and investment, and real estate valuation techniques.
• Differentiate and describe how to conduct oneself in a professional and ethical manner in any real estate office.

Students may satisfy the California State Education requirement for a Broker’s License by completing the following:

Course  Title  Units
RE 191  Real Estate Practice 3
RE 192  Real Estate Finance 3
RE 193  Real Estate Legal Aspects 3
RE 194  Real Estate Appraisal 3
One Accounting or Economics course 3-4

Total Required 15-16

Electives: two of the following:

RE 190  Real Estate Principles 3
RE 201  Real Estate Property Management 3
BUS 125  Business Law: Legal Environment of Business 3

Total Required 21-22

Certificate of Achievement

Students who complete the requirements above qualify for a Certificate in Broker’s License. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

UNIVERSITY STUDIES: BUSINESS AND ECONOMICS

The Associate Degree in University Studies with an Area of Emphasis is intended to accommodate the differing requirements of a wide variety of transfer institutions and major options. Because admission and major preparation requirements vary at each four-year transfer institution, courses used to complete this degree should be selected with the assistance of a counselor. The completion of the University Studies Degree does not guarantee acceptance into either a baccalaureate major or a four-year institution.

REQUIREMENTS:

I. California State University (CSU)

General Education Breadth

1. Complete CSU General Education Breadth (see Degree Requirements and Transfer Information section).
2. Earn a grade of “C” or better in 30 of the required 39 semester units of general education to include all courses in Area A and the Mathematical/Quantitative Reasoning courses in Area B.
3. Credits earned through external examinations, i.e., AP, will be applied towards general education in accordance with Cuyamaca College policies. Please note: This may be different than how the external exam is used on a CSU certification.
4. Complete a minimum of 18 units in an Area of Emphasis (listed below).
5. Complete a minimum of 60 degree applicable CSU transferable semester units.
6. Earn a cumulative GPA of 2.0 in all college course work completed.
7. Meet Cuyamaca College residence requirements for graduation (see Admission Information).

OR

II. Intersegmental General Education Transfer Curriculum (IGETC) for CSU or UC

1. Complete IGETC Certification (see Degree Requirements and Transfer Information section).
2. Earn a grade of “C” or better in all IGETC courses.
3. Credit earned through external examinations, i.e., AP, will be applied in accordance with Cuyamaca College policies. Please note: This may be different than how the external exam is used on an IGETC certification.
4. Complete a minimum of 18 units in an Area of Emphasis (listed below).
5. Complete a minimum of 60 degree applicable UC transferable semester units for UC University Studies.
6. Earn a cumulative GPA of 2.0 in all college course work completed.
7. Meet Cuyamaca College residence requirements for graduation (see Admission Information).

AND

III. Area of Emphasis

A. Business and Economics
B. Communication and Language Arts
C. Humanities and Fine Arts
D. Science and Mathematics
E. Social and Behavioral Sciences

While 18 units are required in a specific area to meet the requirements of the degree, it is strongly recommended that as many lower division preparation for the major courses as possible be completed at the community college prior to transfer. Some baccalaureate majors and four-year institutions require a higher GPA than is necessary for the associate degree. Courses that are not UC-transferable will not be used in the UC University Studies Area of Emphasis Degrees. Completion of the University Studies degree does not guarantee admission to a four-year institution.

Courses for the Associate in Science in University Studies with an Emphasis in Business and Economics focus on the study of business transaction theory and practice, the operations and strategies of business decisions, legal concepts, and the place of business in the American and global economy as a whole. Students will apply mathematical and quantitative reasoning skills to the discipline’s methodologies, as well as evaluate and interpret basic economic principles and theories related to performance and specific economic sectors. Students completing this area may be interested in the following baccalaureate majors: accounting, business, economics, finance, information and decision systems, international business, management, and marketing. Students must complete a minimum of six units in Business, six units in Economics, and six units from the Electives category.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

• Contribute to an effective and ethical organization;
• Prepare and analyze financial statements;
• Use information technology to support effective decision making in the business organization;
• Analyze markets, economic environments and associated trends at the macro and micro levels;
• Express and apply quantitative information in order to make sound decisions and solve problems in the business environment;
• Communicate clearly in the business environment.

Business
BUS 110, 120, 121, 125, 126*

Economics
ECON 110, 120, 121

Electives
CIS 110; MATH 160, 178, 180

* Course not UC transferable
I. AUTOMOTIVE TECHNOLOGY

Associate in Science Degree Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>AUTO 120</td>
<td>Engine Performance I - Mechanical and Ignition Systems</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 122</td>
<td>Automotive Electrical Systems</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 123</td>
<td>Engine Performance II - Fuel Systems Emission Systems</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 127</td>
<td>Advanced Automotive Electrical Systems</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 130</td>
<td>Automotive Brakes and Brake System</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 180</td>
<td>Automotive Service Advisor</td>
<td>1</td>
</tr>
<tr>
<td>AUTO 182</td>
<td>Automotive Work Experience</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two of the following:

| AUTO 124 | Engine Performance III - Drivability       | 5     |
| AUTO 129 | Introduction to Hybrid, Electric and Alternative-Fueled Vehicles | 5     |
| AUTO 140 | Four-Wheel Alignment                        | 5     |
| AUTO 152 | Drive Train Systems                         | 4     |
| AUTO 160 | Air Conditioning and Heating Systems        | 3     |

II. AUTOMOTIVE TECHNOLOGY--ASCCA

The Automotive Service Councils of California Association (ASCCA) sponsored degree program offers a unique, on-the-job training opportunity to those students who are accepted. Training includes all National Automotive Technicians Education Foundation (NATEF) certification areas for Master Technician Certification. Students will be required to further their studies in an ASCCA sponsoring dealership as a paid, work experience technician. This program requires an application, a sponsor relationship with an ASCCA repair dealer, or affiliated member business of the association. Successful students will gain over 1000 hours of documented and evaluated paid work experience relating to the learning objectives of the program, Automotive Service Excellence master certifications, and California Smog Inspector and Repair Technician training licensing.

Program Learning Outcomes

- Perform technical and competent repairs, and professional level diagnosis and descriptions of necessary repairs, of various vehicles and designed systems, for independent dealerships and other affiliated businesses.
- Diagnose analytically, service and maintain automobiles using recommended procedures, special tools, and service publications, and demonstrate knowledge by properly describing cause, effect, and costs to consumers.
- Graduate and continue university education, and advance in position as an automotive technician, service manager, business owner, engineer, or desired career goals, and by additional experience and education demonstrate capability to master new technology systems and components as they are introduced, and become a leader in the transportation industry.
- Provide customer service and business management expertise by attending various required ASCCA meetings, college courses, and training seminars to promote the ethics standards of the association, and other affiliated professional organizations and businesses.

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO 099</td>
<td>Introduction to Automotive Technology</td>
<td>3</td>
</tr>
<tr>
<td>AUTO 100</td>
<td>Introduction to Automotive Technology</td>
<td>1</td>
</tr>
<tr>
<td>AUTO 122</td>
<td>Automotive Electrical Systems</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 123</td>
<td>Engine Performance II Emissions Systems</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 129</td>
<td>Introduction to Hybrid Electric Vehicles</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 130</td>
<td>Automotive Brakes and Brake System</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 140</td>
<td>Four-Wheel Alignment</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 141</td>
<td>Emission Control License</td>
<td>3</td>
</tr>
<tr>
<td>AUTO 142</td>
<td>Emission License Procedures Level II Inspector Training</td>
<td>2</td>
</tr>
<tr>
<td>AUTO 145</td>
<td>Advanced Four-Wheel Alignment</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 155</td>
<td>Advanced Drive Train Systems</td>
<td>4</td>
</tr>
<tr>
<td>AUTO 165</td>
<td>Advanced Air Conditioning and Heating Systems</td>
<td>3</td>
</tr>
<tr>
<td>AUTO 170</td>
<td>Engine Overhaul</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 175</td>
<td>Advanced Engine Overhaul</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 176</td>
<td>Engine Machining</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 182*</td>
<td>Automotive Work Experience</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Required: 38-44

Plus General Education Requirements

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Automotive Technology. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

*Please read the course recommended preparation for AUTO 141 and 142. Most students should take both classes.

III. AUTOMOTIVE TECHNOLOGY--ASEP

The General Motors sponsored ASEP degree program offers a unique job training opportunity to those students who are accepted. Training includes all systems of the sponsoring manufacturers’ automobiles. In addition, students will be required to further their studies in a sponsoring dealership as a paid (work experience) technician. Students who test low in English, reading or math assessment scores (and are accepted into the program) will be required to take remedial courses in those areas in addition to the general education courses. Students who have previous college credit or an associate degree or higher may be exempt from all or part of the general education requirements; please see a counselor.
Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Demonstrate and practice standardized safety and hazardous waste handling practices.
• Describe the work flow processes utilized by new car dealership service departments.
• Perform lubrication maintenance service and minor maintenance services.
• Perform service repair and diagnosis of vehicle suspension, steering and brake systems utilizing a variety of tools and equipment.
• Retrieve manufacturers’ repair data and specifications and utilize this information for accurate diagnosis and repair.
• Following prescribed industry guidelines, diagnose, remove, repair and replace automatic and manual transmissions and transaxles.
• Perform engine repairs to prescribed industry standards.
• Following prescribed industry standards, accurately measure and perform various machining processes on engine components.
• Diagnose and repair engine mechanical and ignition problems utilizing a variety of diagnostic and repair equipment.
• Independently demonstrate ability to perform computer system and fuel system service using related diagnostic equipment.
• Evaluate technical service bulletins for assisting in repairing various drivability concerns.
• Independently demonstrate ability to perform electronic engine diagnostics on both gasoline and diesel engines.
• Following prescribed industry standards, correctly utilize test equipment and tools to diagnose and repair automotive electrical systems.
• Utilizing prescribed industry practices, diagnose, repair, remove and replace air conditioning and heating systems and components.
• Independently apply technical training and skill sets learned at school in an actual automotive repair shop environment.
• Evaluate vehicle emission equipment and accurately perform a full smog inspection.
• Diagnose and repair vehicles that fail smog inspections.

Assocate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO 141</td>
<td>Emission Control License</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Fundamentals</td>
<td></td>
</tr>
<tr>
<td>AUTO 142</td>
<td>Emission License Procedures</td>
<td>2</td>
</tr>
<tr>
<td>Level II Inspector Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUTO 200</td>
<td>ASEF-Orientation</td>
<td>1</td>
</tr>
<tr>
<td>AUTO 201</td>
<td>ASEF-Electrical</td>
<td>6</td>
</tr>
<tr>
<td>AUTO 202</td>
<td>ASEF-Brakes and Alignment</td>
<td>7</td>
</tr>
<tr>
<td>AUTO 203</td>
<td>ASEF-Engine Repair</td>
<td>4.5</td>
</tr>
<tr>
<td>AUTO 204</td>
<td>ASEF-Power Train</td>
<td>7</td>
</tr>
<tr>
<td>AUTO 205</td>
<td>ASEF-Engine Performance and</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Air Conditioning</td>
<td></td>
</tr>
<tr>
<td>AUTO 206*</td>
<td>ASEF-Work Experience</td>
<td>16</td>
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<tr>
<td>Total</td>
<td>Required</td>
<td>52.5</td>
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<tr>
<td></td>
<td>Plus General Education Requirements</td>
<td>73</td>
</tr>
</tbody>
</table>

*Must be taken five times for a total of 15 units.

IV. AUTOMOTIVE TECHNOLOGY–FORD ASSET
The Ford sponsored Automotive Student Service Education and Training (ASSET) degree and certification program offers a unique job training opportunity to those students who are sponsored by a Ford dealership. The training includes all major content areas of Ford hybrid, electric, diesel, gasoline, alternative fuels and light and heavy trucks. In addition, students will be required to further their studies in a sponsoring dealership. Work experience classes can be used by a student to demonstrate competency and efficiency performing prescribed tasks for certification. Students seeking an associate’s degree who test low in English, reading or math assessment scores will be required to take remedial courses in those areas in addition to the general education courses. Students who have previous college credit or an associate degree or higher may be exempt from all or part of the general education and Ford ASSET major credit requirements. Furthermore, students may use previous military training, automotive classes from accredited colleges, trade schools, or manufacturers training for credit by examination, please see a counselor or the department coordinator.

There are two pathways: Traditional Face-to-Face and Distance Education.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Independently diagnose Ford vehicles at a Ford dealership using knowledge skills and abilities demonstrating the proper use of tools, the workshop manual, and service information systems.
• Effectively repair various mechanical and electronic systems and subsystems using the Ford symptom to system to component to cause (SSCC) process.
• Communicate throughout the repair process with dealership and Ford personnel properly describing the diagnosis and repair processes according to state and federal regulations.
• Comply with federal and state pollution and safety regulations ensuring Ford Motor Company standards of ethics are demonstrated.

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO 190</td>
<td>ASSET-Orientation, PDI and</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Suspension and NVH</td>
<td></td>
</tr>
<tr>
<td>AUTO 191</td>
<td>ASSET-Brakes, Advanced Brakes,</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Suspension and NVH</td>
<td></td>
</tr>
<tr>
<td>AUTO 191ABCDE</td>
<td>ASSET-Brakes and</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>Suspension and NVH</td>
<td></td>
</tr>
<tr>
<td>AUTO 192</td>
<td>ASSET-Drive Train</td>
<td>8</td>
</tr>
<tr>
<td>AUTO 192ABC</td>
<td>ASSET-Automatic Transmission</td>
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</tr>
<tr>
<td></td>
<td>Service and ASSET-Transmission</td>
<td>Diagnosis and Service</td>
</tr>
<tr>
<td>AUTO 193</td>
<td>ASSET-Engine Repair</td>
<td>4.5</td>
</tr>
<tr>
<td>AUTO 193ABC</td>
<td>ASSET-Engine Diagnosis and</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>Repair</td>
<td></td>
</tr>
<tr>
<td>AUTO 195</td>
<td>ASSET-Electric Electronic</td>
<td>7</td>
</tr>
<tr>
<td>AUTO 195ABC</td>
<td>ASSET-Engine Performance and</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Diagnosis and Repair</td>
<td></td>
</tr>
<tr>
<td>AUTO 196</td>
<td>ASSET-Electric, Accessories</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>and Air Conditioning</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL REQUIRED 38.5-46

Note: English and math requirements should be accomplished during the first year of enrollment. All other GE requirements should be accomplished during the second year.

V. AUTOMOTIVE TECHNOLOGY–ADVANCED ENGINE PERFORMANCE AND EMISSIONS
Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Demonstrate and practice standardized safety and hazardous waste handling practices.
• Diagnose and repair engine mechanical and ignition problems utilizing a variety of diagnostic and repair equipment.
• Evaluate vehicle emission equipment and accurately perform a full smog inspection.
• Diagnose and repair vehicles that fail smog inspections.
• Read and interpret automotive electrical wiring diagrams to aid in the diagnosis of automotive electrical problems.
• Using prescribed industry standards, correctly utilize test equipment and tools to diagnose and repair automotive electrical systems.
• Independently demonstrate ability to perform computer system and fuel system service using related diagnostic equipment.
• Evaluate technical service bulletins to assist in repair of various drivability concerns.

Certificate Requirements:

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO 120</td>
<td>Engine Performance I -</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Mechanical and Ignition</td>
<td></td>
</tr>
<tr>
<td>AUTO 122</td>
<td>Automotive Electrical Systems</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 123</td>
<td>Engine Performance II -</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Fuel Systems Emission</td>
<td></td>
</tr>
<tr>
<td>AUTO 124</td>
<td>Engine Performance III -</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Drivability</td>
<td></td>
</tr>
<tr>
<td>AUTO 141</td>
<td>Emission Control License</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Fundamentals</td>
<td></td>
</tr>
<tr>
<td>AUTO 142</td>
<td>Emission License Procedures</td>
<td>2</td>
</tr>
<tr>
<td>Level II Inspector Training</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Required 25

Certificate of Achievement
Students who complete the requirements above qualify for a Certificate in Automotive Technology–Advanced Engine Performance and Emissions. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.
VI. BRAKES AND FRONT-END

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Demonstrate and practice standardized safety and hazardous waste handling practices.
• Perform various brake system repairs to prescribed industry standards.
• Diagnose and repair Anti-lock Brake systems.
• Using prescribed industry standards, diagnose and repair/replace steering and suspension components.
• Diagnose wheel alignment and tire related problems and align vehicles to industry specifications.
• Utilize communications skills to effectively deal with disgruntled colleagues in your work place.
• Utilize good customer relations techniques to improve customer satisfaction.
• Correctly adhere to BAR regulations involving hazardous waste handling practices.
• Utilize good customer relations techniques to improve customer satisfaction.
• Utilize communications skills to effectively deal with disgruntled colleagues in your work place.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO 120</td>
<td>Engine Performance I - Mechanical and Ignition Systems</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 122</td>
<td>Automotive Electrical Systems</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 152</td>
<td>Drive Train Systems</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 170</td>
<td>Engine Overhaul</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 182</td>
<td>Automotive Work Experience</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Required: 22

Certificate of Achievement
Students who complete the requirements above qualify for a Certificate in Automotive Technology – Brakes and Front-End. The Admissions and Records Office must be notified of the successful completion of the program within 30 days of the deadline as stated in the Academic Calendar.

VII. ENGINE PERFORMANCE AND DRIVE TRAIN

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Perform various engine replacement processes on engine components.
• Utilize communications skills to effectively deal with disgruntled colleagues in your work place.
• Utilize good customer relations techniques to improve customer satisfaction.
• Correctly adhere to BAR regulations involving hazardous waste handling practices.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO 130</td>
<td>Automotive Brakes and Brake License</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 140</td>
<td>Four-Wheel Alignment</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 145</td>
<td>Advanced Four-Wheel Alignment</td>
<td>5</td>
</tr>
<tr>
<td>AUTO 160</td>
<td>Automotive Service Advisor</td>
<td>1</td>
</tr>
<tr>
<td>AUTO 182</td>
<td>Automotive Work Experience</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Required: 19

Certificate of Achievement
Students who complete the requirements above qualify for a Certificate in Automotive Technology – Drive Train. The Admissions and Records Office must be notified of the successful completion of the program within 30 days of the deadline as stated in the Academic Calendar.
**Cuyamaca College Catalog 2019-2020**

**Associate Degree Programs and Certificates**

## Certificate Requirements

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CADD 115 Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CADD 140 Introduction to Advanced CADD/Manufacturing</td>
<td>2</td>
</tr>
<tr>
<td>CADD 200R Intro to 3D Solid Modeling (SW)*</td>
<td>3</td>
</tr>
<tr>
<td>CADD 215 Advanced CADD/Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>CADD 240 Advanced CADD/Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>CADD 250 Advanced CADD/Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>CADD 260 Advanced CADD/Manufacturing</td>
<td>3</td>
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</tbody>
</table>

Total Required: 14

* Students have the opportunity to attain a certificate of "Certified SolidWorks Associate (CSWA)"

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### CENTER FOR WATER STUDIES

#### I. BACKFLOW & CROSS-CONNECTON CONTROL

Program Learning Outcomes

- Differentiate between different backflow devices and methods.
- Compare and contrast the effective uses of backflow devices and explain their limitations.
- Describe the specifications, installation, and operation of typical devices used in backflow prevention and testing and explain their proper installation.
- Perform accurate backflow prevention tests using proper test equipment.
- Analyze backflow prevention test results using standardized testing reporting forms.
- Evaluate backflow testing device manufacturers.
- Articulate the importance of proper backflow testing equipment selection and use.
- Cite specific laws pertaining to cross-connection control programs.
- Complete basic backflow testing device repairs requiring breakdown and reassembly.
- Articulate the AWWA and ABPA testing standards.

### Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWS 101 Fundamentals of Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>CWS 102 Calculations in Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>CWS 130 Water Distribution Systems</td>
<td>3</td>
</tr>
<tr>
<td>CWS 202B Backflow Tester Training</td>
<td>2</td>
</tr>
<tr>
<td>CWS 282 Cross-Connection Control Specialist</td>
<td>3</td>
</tr>
<tr>
<td>CWS 284 Cross-Connection Control Specialist–Recycled Water</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Required: 29-31

Plus General Education Requirements

### Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Backflow & Cross-Connection Control. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

#### II. WATER DISTRIBUTION OPERATIONS

Program Learning Outcomes

- Identify sources and characteristics of water common to water distribution systems.
- Compare and contrast the different types of water distribution systems currently used in the United States.
- Identify drinking water public health hazards and water quality standards common to the industry.
- Using calculations and conversions, determine water pressure, volume, velocity and force, and chemical dosage used in water distribution systems.
- Identify and compare methods used to handle, install and repair water distribution pipe.
- Explain principles of pump operation for the types of pumps used in water distribution systems, including common problems, necessary adjustments, and typical packing gland problems.
- Explain the electrical principles involved in control circuits common to water distribution systems.
- Explain the required safe handling and storage of chlorine used in water distribution systems.
- Check and utilize water maps and drawings to determine location, type and characteristics of water distribution systems.
- Specify necessary procedures needed to safely complete field work in a water distribution system.
- Compare and contrast factors considered in the selection of pipe and different types of water meters.
- Demonstrate the ability to read meters and calculate the meter accuracy.

### Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWS 103 Water Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>CWS 105 Water Conservation</td>
<td>3</td>
</tr>
<tr>
<td>CWS 106 Electrical &amp; Instrumentation Processes</td>
<td>3</td>
</tr>
<tr>
<td>CWS 110 Laboratory Analysis for Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>CWS 115 Wastewater Reclamation and Reuse</td>
<td>3</td>
</tr>
<tr>
<td>CWS 132 Wastewater Collection Systems</td>
<td>3</td>
</tr>
<tr>
<td>CWS 134 Pumps, Motors, &amp; Valves</td>
<td>3</td>
</tr>
<tr>
<td>CWS 290 Cooperative Work Experience</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Required: 9-11

Plus General Education Requirements

### Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Water Distribution Operations. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

#### III. WATER RESOURCES MANAGEMENT

This major prepares students to design, implement and evaluate water conservation/water resources management programs and to assist in developing more diversified water resource portfolios in the water and wastewater sector or in the landscape and property management field. Emphasis is on emerging technologies and methods that lead to long-term sustainability of our water and wastewater resources. Attaining a certificate or degree in this major will prepare students to enter careers in water conservation, watershed management, water resources and groundwater, public information, and community education. Careers in landscape and facilities maintenance, irrigation system design, urban water management, and landscape design are also options. Students successfully completing the core requirements for this major will qualify to take the American Water Works Association’s Water Use Efficiency Practitioner certification examination, the Landscape Water Management certification offered by the California Landscape Contractor’s Association, and the Certified Landscape Water Manager certification offered by the Irrigation Association. In addition to preparing students for entry level jobs in the water and wastewater field, courses in this major
prepare students to transfer to a number of four-year college or university degree programs, including Water Resources, Environmental Sciences, and Natural Resources Management.

**Program Learning Outcomes**
Upon successful completion of this program, students will be able to:
- Describe the essential uses of water, the infrastructure that has been developed to meet demand, and the problems the water industry faces.
- Identify a specified number of legal and financial constraints which complicate efficient and effective water resource management.
- Explain the concept and importance of water portfolio diversification.
- Describe the political/organizational structures and list the major agencies involved in providing water in the greater San Diego region.
- Compare and contrast the sources of wastewater, the major collection/transportation networks, and the major wastewater treatment/reclamation facilities operating in San Diego County.
- Identify the major regulatory agencies that monitor and regulate the water/wastewater industry.
- Explain how the current carbon footprint of the water and wastewater infrastructure significantly impacts California’s energy and power demands.
- Compare and contrast a specified number of resource recovery/alternative treatment methods.

**Associate in Science Degree Requirements:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWS 101</td>
<td>Fundamentals of Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>CWS 103</td>
<td>Water Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>CWS 105</td>
<td>Water Conservation</td>
<td>3</td>
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<tr>
<td>CWS 111</td>
<td>Water resources management</td>
<td>3</td>
</tr>
<tr>
<td>OH 102</td>
<td>Fundamentals of Ornamental Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>OH 107</td>
<td>Plant Materials: Trees and Shrubs</td>
<td>3</td>
</tr>
<tr>
<td>OH 221</td>
<td>Landscape Construction: Irrigation and</td>
<td>3</td>
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<tr>
<td></td>
<td>Carpentry</td>
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<td>OH 250</td>
<td>Landscape Water Management</td>
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<tr>
<td>CWS 290</td>
<td>Cooperative Work Experience</td>
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<tr>
<td>or</td>
<td>Cooperative Work Experience Education</td>
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<tr>
<td>OH 290</td>
<td>Cooperative Work Experience</td>
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</table>

Select two of the following:
- CWS 102 Calculations in Water & Wastewater
- CWS 114 Wastewater Treatment Plant Operations
- CWS 115 Wastewater Reclamation and Reuse
- CWS 130 Water Distribution Systems
- CWS 206 Advanced Electrical & Instrumentation Processes
- CWS 207 Practical Skills in Water & Wastewater Systems
- CWS 210 Advanced Laboratory Analysis for Water & Wastewater
- CWS 214 Advanced Wastewater Treatment Plant Operations
- CWS 230 Advanced Water Distribution Systems
- CWS 268 Membrane Plant Operation
- CWS 270 Public Works Supervision
- CWS 280 Backflow Tester Training
- CWS 282 Cross-Connection Control Specialist
- CWS 290 Cooperative Work Experience

Total Required: 6-7

Plus General Education Requirements

**Certificate of Achievement**
Students who complete only the major requirements above qualify for a Certificate in Water Resources Management. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**IV. WATER TREATMENT PLANT OPERATIONS**
Students enrolled in this major learn the key steps, processes, and current technology involved in operating modern water treatment plants. Students who satisfactorily complete the required courses in this certificate and/or degree program will qualify to take the California Department of Public Health (CDPH) Grade T-1 and T-2 Water Treatment Plant Operator examinations required for certification and employment at water treatment plants.

**Program Learning Outcomes**
Upon successful completion of this program, students will be able to:
- Identify in detail characteristics and sources of ground water and surface water supplies, including the chemical, physical and bacterial characteristics, and explain the effects on quality of geological formations, stratifications, and watershed management.
- Compare the basic principles of each water treatment process and list them in order performed.
- Identify and classify water distribution system components.
- Explain pump cavitation, corrosion, cross-connection, air, valves, head loss and main flushing in relation to water and wastewater collection, distribution, and treatment.
- Compare and contrast the basic principles of each water treatment process and list them in order performed.
- Explain and prepare a plan for the use of chlorine including the characteristics of and methods for storing, feeding and measuring chlorine including the effects of moisture, pH and temperature on feed rate, and the health and safety effects, procedures and personal protective requirements.
- Determine the methods used for coagulation, flocculation and sedimentation including common chemicals used, feed systems, effects of time temperature, turbidity and pH, and the measurement of turbidity and color.
- Compare and contrast the six basic water quality parameters and explain in detail microbiological and chemical components, including sampling requirements and properties.
- Demonstrate through testing basic knowledge of the regulations for monitoring water quality and performing water treatment.
- Perform basic mathematical calculations and conversions relating to water flow, pressure, volume, velocity, chemical dosage, and hydraulic and organic loading.
- Determine appropriate safety procedures applicable to service and operation of water treatment and distribution systems including potential problems.

**Associate in Science Degree Requirements:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWS 100</td>
<td>Career Pathways in Water &amp; Wastewater</td>
<td>3</td>
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<tr>
<td>CWS 101</td>
<td>Fundamentals of Water &amp; Wastewater</td>
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<td>CWS 102</td>
<td>Calculations in Water &amp; Wastewater</td>
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<tr>
<td>CWS 106</td>
<td>Electrolytic &amp; Instrumentation Processes</td>
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<td>CWS 112</td>
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<tr>
<td>CWS 134</td>
<td>Pumps, Motors &amp; Valves</td>
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<tr>
<td>CWS 204</td>
<td>Applied Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>CWS 212</td>
<td>Advanced Water Treatment Plant Operations</td>
<td>3</td>
</tr>
</tbody>
</table>

Select at least six units from the following:
- CWS 103 Water Resources Management
- CWS 105 Water Conservation
- CWS 114 Wastewater Treatment Plant Operations
- CWS 115 Wastewater Reclamation and Reuse
- CWS 130 Water Distribution Systems
- CWS 206 Advanced Electrical & Instrumentation Processes
- CWS 207 Practical Skills in Water & Wastewater Systems
- CWS 210 Advanced Laboratory Analysis for Water & Wastewater
- CWS 214 Advanced Wastewater Treatment Plant Operations
- CWS 230 Advanced Water Distribution Systems
- CWS 268 Membrane Plant Operation
- CWS 270 Public Works Supervision
- CWS 280 Backflow Tester Training
- CWS 282 Cross-Connection Control Specialist
- CWS 290 Cooperative Work Experience

Total Required: 36-37

Plus General Education Requirements

**Certificate of Achievement**
Students who complete only the major requirements above qualify for a Certificate in Water Treatment Plant Operations. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**V. WASTEWATER COLLECTION SYSTEMS**
Students completing the required courses for this major will qualify to take nearly a dozen wastewater related certification examinations offered by the California Water Environment Association (CWEA). Although current State regulations do not require certification of wastewater collection system personnel, many public sector employers either require or prefer job applicants who have obtained the CWEA Wastewater Collection and Maintenance certifications.

**Program Learning Outcomes**
Upon successful completion of this program, students will be able to:
- Define common terminology pertaining to collection systems components, design, and management as well as inspection and quality control.
- Identify the types and functions of pipes and fittings used in wastewater collection system design and management.
• Given a wastewater collection map book, identify pipeline dimensions, pipe construction materials, direction of flow, and location of valves, services and lift stations.
• Describe in detail basic underground location and leak detection, trenching and shoring, and backfill and compaction methods of construction used in the field.
• Describe the nine basic cleaning methods and basic principles involved in hydraulic and mechanical cleaning methods.
• List and describe the operation of common valves used in a wastewater collection system.
• Perform basic mathematical computations and conversions relating to wastewater collection systems, pressure, volume, velocity, chemical dosage, and hydraulic and organic loading.

**Associate in Science Degree Requirements:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<td>Fundamentals of Water &amp; Wastewater</td>
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<td>Electrical &amp; Instrumentation Processes</td>
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<td>Safety in Water &amp; Wastewater</td>
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<td>CWS 132</td>
<td>Wastewater Collection Systems</td>
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<tr>
<td>CWS 134</td>
<td>Pumps, Motors &amp; Valves</td>
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<td>Applied Hydraulics</td>
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<td>CWS 232</td>
<td>Advanced Wastewater Collection Systems</td>
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<tr>
<td>CWS 282</td>
<td>Cross-Connection Control Specialist</td>
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Select at least six units from the following:

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<td>Laboratory Analysis for Water &amp; Wastewater</td>
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<td>CWS 112</td>
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<td>CWS 114</td>
<td>Wastewater Treatment Plant Operations</td>
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<tr>
<td>CWS 115</td>
<td>Wastewater Reclamation and Reuse</td>
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<td>Water Distribution Systems</td>
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<td>CWS 206</td>
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<td>CWS 290</td>
<td>Cooperative Work Experience</td>
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Total Required: 36-37

**Certificate of Achievement**

Students who complete only the major requirements above qualify for a Certificate in Wastewater Collection Systems. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**Certificate Requirements:**

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
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<tr>
<td>CWS 134</td>
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Total Required: 9
ENVIRONMENTAL & APPLIED TECHNOLOGY

ADVANCED WATER DISTRIBUTION OPERATIONS

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Water Distribution System Operations-5 – Identify and compare methods used to handle, install and repair water distribution pipe.
- Water Distribution System Operations-7 – Explain the electrical principles involved in control circuits common to water distribution systems.
- Water Distribution System Operations-8 – Explain the required safe handling and storage of chlorine used in water distribution systems.
- Water Distribution System Operations-11 – Compare and contrast factors considered in the selection of pipe and different types of water meters.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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WATER TREATMENT PLANT OPERATIONS, STACKABLE CERTIFICATES OF SPECIALIZATION

WATER & WASTEWATER FUNDAMENTALS

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Water Treatment Plant Operator-1 – Identify in detail characteristics and sources of ground water and surface water supplies including the chemical, physical and bacterial characteristics, and explain the effects on quality of geological formations, stratifications, and watershed management.
- Water Treatment Plant Operator-10 – Perform basic mathematical calculations and conversions relating to water flow, pressure, volume, velocity, chemical dosage, and hydraulic and organic loading.
- Water Treatment Plant Operator-11 – Determine appropriate safety procedures applicable to service and operation of water treatment and distribution systems including potential problems.

Certificate Requirements:

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<tr>
<th>Course</th>
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<td>Calculations in Water &amp; Wastewater</td>
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WATER TREATMENT PLANT OPERATIONS

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Water Treatment Plant Operator-2 – Compare the basic principles of each water treatment process and list them in order performed.
- Water Treatment Plant Operator-5 – Compare and contrast the basic principles of each water treatment process and list them in order performed.
- Water Treatment Plant Operator-9 – Demonstrate through testing basic knowledge of the regulations for monitoring water quality and performing water treatment.

Certificate Requirements:

<table>
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<tr>
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</table>

ADVANCED WATER DISTRIBUTION OPERATIONS

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Water Treatment Plant Operator-2 – Compare the basic principles of each water treatment process and list them in order performed.
- Water Treatment Plant Operator-5 – Compare and contrast the basic principles of each water treatment process and list them in order performed.
- Water Treatment Plant Operator-9 – Demonstrate through testing basic knowledge of the regulations for monitoring water quality and performing water treatment.

Certificate Requirements:

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WASTEWATER COLLECTION SYSTEMS, STACKABLE CERTIFICATES OF SPECIALIZATION

WATER & WASTEWATER FUNDAMENTALS

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Wastewater Collection Systems-1 – Define common terminology pertaining to collections system components, design, and management as well as inspection and quality control.
- Wastewater Collection Systems-7 – Perform basic mathematical computations and conversions relating to wastewater collection systems, pressure, volume, velocity, chemical dosage, and hydraulic and organic loading.

Certificate Requirements:

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<thead>
<tr>
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<tbody>
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<td>Calculations in Water &amp; Wastewater</td>
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<td>CWS 107</td>
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<tr>
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WASTEWATER COLLECTION SYSTEMS

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Wastewater Collection Systems-4 – Describe in detail basic underground location and leak detection, trenching and shoring, and backfill and compaction methods of construction used in the field.
- Wastewater Collection Systems-5 – Describe the nine basic cleaning methods and basic principles involved in hydraulic and mechanical cleaning methods.
- Wastewater Collection Systems-6 – List and describe the operation of common valves used in a wastewater collection system.

Certificate Requirements:

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<thead>
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<th>Course</th>
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<td>Pumps, Motors &amp; Valves</td>
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</table>
ADVANCED WASTEWATER COLLECTION SYSTEMS

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Wastewater Collection Systems-7 – Perform basic mathematical computations and conversions relating to wastewater collection systems, pressure, volume, velocity, chemical dosage, and hydraulic and organic loading.
- Wastewater Collection Systems-5 – Describe the nine basic cleaning methods and basic principles involved in hydraulic and mechanical cleaning methods.
- Wastewater Collection Systems-2 – Identify the types and functions of pipes and fittings used in wastewater collection system design and management.
- Wastewater Collection Systems-4 – Describe in detail basic underground location and leak detection, trenching and shoring, and backfill and compaction methods of construction used in the field.

Certificate Requirements:

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<th>Course</th>
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<th>Units</th>
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</table>

WASTEWATER TREATMENT OPERATIONS, STACKABLE CERTIFICATES OF SPECIALIZATION

WATER & WASTEWATER FUNDAMENTALS

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Wastewater Treatment Operator-1 – Identify the characteristics and sources of municipal sewage.
- Wastewater Treatment Operator-4 – Describe the basic principles of conventional wastewater treatment.
- Wastewater Treatment Operator-8 – Recognize and comment on safety procedures applicable to service and operation of wastewater collection and treatment systems, including potential problems.

Certificate Requirements:

<table>
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<td>CWS 110</td>
<td>Laboratory Analysis for Water &amp; Wastewater</td>
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<td>CWS 114</td>
<td>Wastewater Treatment Plant Operations</td>
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</table>

ADVANCED WASTEWATER TREATMENT OPERATIONS

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Wastewater Treatment Operator-7 – Perform basic mathematical calculations and conversions relating to water flow, pressure, volume, velocity, chemical dosage, and hydraulic and organic loading.
- Wastewater Treatment Operator-3 – Describe the specifications, installation, and operation of typical devices used in backflow prevention and testing and explain their proper installation.
- Wastewater Treatment Operator-6 – Explain the basic principles of preliminary, primary, secondary and tertiary treatment.
- Wastewater Treatment Operator-5 – Compare and contrast wastewater treatment unit processes including preliminary, primary, secondary and tertiary treatment.

Certificate Requirements:

<table>
<thead>
<tr>
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<td>CWS 214</td>
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</table>

COMPUTER AND INFORMATION SCIENCE

See Business Office Technology for specific Microsoft applications (Word, Excel, PowerPoint, etc.).

CAREER OPPORTUNITIES

- Communications Specialist
- Computer Game Programmer
- Computer Hardware Specialist
- Computer Help Desk Technician
- Computer Maintenance Technician
- Computer Software Technician
- Computer Support Specialist
- * Computer Systems Analyst
  - Computing Analyst
  - Cyber Security Specialist
  - Database Manager
  - Information Specialist
  - Information Systems Programmer
  - LAN/WAN Manager
  - Manufacturer’s Representative
  - Network Administrator
  - Network Analyst
  - Network Consultant
  - Network Control Technician
  - Network Training and Support Specialist
  - * Programmer Analyst
  - Sales and Service
  - * Scientific Programmer
  - Software Consultant
  - Software Developer
  - Systems Analyst
  - Systems Programmer
  - Technical Support Representative
  - Telecommunications Programmer
  - Telecommunications Technician
  - Telecommunications Technical Engineer
  - Training Specialist
- Web Designer
- Web Developer
- * Bachelor Degree or higher required

Similar Course List:
The following Cuyamaca and Grossmont College courses are considered similar enough to be accepted in the major for local computer science degrees in the district. Modification of Major forms are not required.

<table>
<thead>
<tr>
<th>Similar Cuyamaca</th>
<th>Similar Grossmont</th>
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<tbody>
<tr>
<td>CIS 105</td>
<td>CSIS 172</td>
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ENVIRONMENTAL & APPLIED TECHNOLOGY

* Indicates a specific course.
I. NETWORKING, SECURITY AND SYSTEM ADMINISTRATION

These degree programs prepare students for careers in computer networking or system administration and related fields. Upon completion, students may find entry level positions as computer support technicians, junior network administrators, junior system administrators, hardware technicians, data/voice/video/cabling technicians, network project managers, designers, installers or technical support personnel. The major prepares students to work as team members in an information technology group which designs, evaluates, tests, installs and maintains corporate networks. Preparation for the following industry certifications: A+, Network+, Security+, Linux+, Microsoft Certified Technicians (MCT), Windows and Windows Server (active directory, network infrastructure and applications infrastructure). Linux Professional Institute Certification Level 2, Certified Wireless Network Administrator (CWNA), CISCO Certified Network Associate (CCNA), Certified Ethical Hacking (CEH).

A. NETWORKING, SECURITY AND SYSTEM ADMINISTRATION - ENTERPRISE NETWORKING

Program Learning Outcomes

Upon successful completion of this program, students will be able to:
- Install, configure, upgrade, test, and troubleshoot a personal computer (hardware, system software, and networking hardware and software) and Linux and Windows servers (directory services, networking, print services, server security, remote access, DNS, DHCP, web server, file server, mail server, FTP server, file systems, partitions, logical volumes, server/network performance, and data backup and recovery).

Associate in Science Degree Requirements:

Core Curriculum:

<table>
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<th>Course Title</th>
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<td>CIS 101 Linux Operating System</td>
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</tr>
<tr>
<td>CIS 201 CISCO Networking Academy I</td>
<td>3</td>
</tr>
<tr>
<td>CIS 202 CISCO Networking Academy II</td>
<td>3</td>
</tr>
<tr>
<td>CIS 203 CISCO Networking Academy III</td>
<td>3</td>
</tr>
<tr>
<td>CIS 204 CISCO Networking Academy IV</td>
<td>3</td>
</tr>
<tr>
<td>CIS 209 CISCO Networking Academy IX</td>
<td>3</td>
</tr>
<tr>
<td>CIS 263 Fundamentals of Network Security</td>
<td>3</td>
</tr>
<tr>
<td>CIS 190 Windows Operating System</td>
<td>3</td>
</tr>
<tr>
<td>CIS 191 Linux Operating System</td>
<td>3</td>
</tr>
<tr>
<td>CIS 210 CISCO Networking Academy–Voice</td>
<td>4</td>
</tr>
<tr>
<td>CIS 261 NSSA Degree Capstone</td>
<td>2</td>
</tr>
<tr>
<td>CIS 262 Wireless Networking</td>
<td>3</td>
</tr>
<tr>
<td>CIS 264 Ethical Cybersecurity Hacking</td>
<td>3</td>
</tr>
<tr>
<td>CIS 265 Computer Forensics</td>
<td>3</td>
</tr>
<tr>
<td>CIS 266 Technical Diagramming Using</td>
<td>3</td>
</tr>
<tr>
<td>CIS 291 Linux System Administration</td>
<td>3</td>
</tr>
<tr>
<td>CIS 293 Windows Server–Installing and Configuring</td>
<td>2</td>
</tr>
<tr>
<td>CIS 294 Windows Server–Advanced Configuration</td>
<td>2</td>
</tr>
<tr>
<td>CIS 295 VMware Certified Professional</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Required Including Core Classes: 28-34
Plus General Education Requirements

Certificate of Achievement

Students who complete the courses required for the major including an area of emphasis qualify for a Certificate in Networking, Security and System Administration – Enterprise System Administration. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

B. NETWORKING, SECURITY AND SYSTEM ADMINISTRATION - ENTERPRISE SYSTEM ADMINISTRATION

Program Learning Outcomes

Upon successful completion of this program, students will be able to:
- Install, configure, upgrade, test, and troubleshoot a personal computer (hardware, system software, and networking hardware and software) and Linux and Windows servers (directory services, networking, print services, server security, remote access, DNS, DHCP, web server, file server, mail server, FTP server, file systems, partitions, logical volumes, server/network performance, and data backup and recovery).

Associate in Science Degree Requirements:

Core Curriculum:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 120 Computer Maintenance and A+ Certification</td>
<td>3</td>
</tr>
<tr>
<td>CIS 121 Network Cabling Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIS 125 Network+ Certification</td>
<td>3</td>
</tr>
<tr>
<td>CIS 119 Program Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>CIS 119L Program Design and Development Lab</td>
<td>1</td>
</tr>
</tbody>
</table>

Area of Emphasis:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 190 Windows Operating System</td>
<td>3</td>
</tr>
<tr>
<td>CIS 191 Linux Operating System</td>
<td>3</td>
</tr>
<tr>
<td>CIS 290 Windows Server–Installing and Configuring</td>
<td>2</td>
</tr>
<tr>
<td>CIS 291 Linux System Administration</td>
<td>3</td>
</tr>
<tr>
<td>CIS 293 Windows Server–Administering</td>
<td>2</td>
</tr>
<tr>
<td>CIS 294 Windows Server–Advanced Configuration</td>
<td>2</td>
</tr>
<tr>
<td>CIS 140 Databases</td>
<td>3</td>
</tr>
<tr>
<td>CIS 162 Technical Diagramming Using</td>
<td>3</td>
</tr>
<tr>
<td>CIS 261 NSSA Degree Capstone</td>
<td>2</td>
</tr>
<tr>
<td>CIS 262 Fundamentals of Network Security</td>
<td>3</td>
</tr>
<tr>
<td>CIS 264 Ethical Cybersecurity Hacking</td>
<td>3</td>
</tr>
<tr>
<td>CIS 265 Computer Forensics</td>
<td>3</td>
</tr>
<tr>
<td>CIS 295 VMware Certified Professional</td>
<td>3</td>
</tr>
</tbody>
</table>

Select four of the following:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 140D Databases</td>
<td>3</td>
</tr>
<tr>
<td>CIS 162 Technical Diagramming Using</td>
<td>3</td>
</tr>
<tr>
<td>CIS 261 NSSA Degree Capstone</td>
<td>2</td>
</tr>
<tr>
<td>CIS 262 Fundamentals of Network Security</td>
<td>3</td>
</tr>
<tr>
<td>CIS 264 Ethical Cybersecurity Hacking</td>
<td>3</td>
</tr>
<tr>
<td>CIS 265 Computer Forensics</td>
<td>3</td>
</tr>
<tr>
<td>CIS 295 VMware Certified Professional</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Required Including Core Classes: 30-34
Plus General Education Requirements

Certificate of Achievement

Students who complete the courses required for the major including an area of emphasis qualify for a Certificate in Networking, Security and System Administration – Enterprise System Administration. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

C. WEB DEVELOPMENT

This degree program equips students with the essential coding, programming, and design skills needed to build websites and applications for desktop and mobile platforms. Students gain practical experience using state of the art tools and techniques such as HTML/CSS, JavaScript, PHP/MySQL, frameworks, and content management systems.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:
- Develop attractive, usable, mobile-friendly websites using current development technologies such as HTML/CSS, JavaScript, PHP/MySQL, frameworks, and content management systems.

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 140 Databases</td>
<td>3</td>
</tr>
<tr>
<td>CIS 211 Web Development I</td>
<td>3</td>
</tr>
<tr>
<td>CIS 213 Web Development II</td>
<td>3</td>
</tr>
<tr>
<td>CIS 215 Javascript Web Programming</td>
<td>3</td>
</tr>
<tr>
<td>CIS 219 PHP/MySQL Dynamic Web-Based Applications</td>
<td>3</td>
</tr>
<tr>
<td>CIS 119 Program Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>CIS 119L Program Design and Development Lab</td>
<td>1</td>
</tr>
<tr>
<td>GD 105 Fundamentals of Digital Media</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Required: 29-34
Plus General Education Requirements

Certificate of Achievement

Students who complete the courses required for the major including an area of emphasis qualify for a Certificate in Web Development. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

CERTIFICATES OF SPECIALIZATION:

These certificates offer specific training for either entry-level positions or to augment related programs such as Network Administration, Web Development, Business Office Technology or Business Technology. The certificates are designed to demonstrate a relatively narrow expertise or skill area that may be used to attain a computer industry “niche” job.

Students who complete the requirements below qualify for a certificate in that area of emphasis. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

I. CISCO CERTIFIED NETWORK ASSOCIATE

Program Learning Outcomes

Upon successful completion of this certificate, students will be able to:
- Plan, design, configure, test, and troubleshoot network topologies consisting of routers, switches, wireless routers, and PCs using the CISCO IOS CLI; ip addressing, interior gateway protocols, HDLC, PPP and Frame-Relay WAN protocols; VLANs; NAT; DHCP; router and switch security techniques.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 201 CISCO Networking Academy I</td>
<td>3</td>
</tr>
<tr>
<td>CIS 202 CISCO Networking Academy II</td>
<td>3</td>
</tr>
<tr>
<td>CIS 203 CISCO Networking Academy III</td>
<td>3</td>
</tr>
<tr>
<td>CIS 204 CISCO Networking Academy IV</td>
<td>3</td>
</tr>
<tr>
<td>CIS 209 CISCO Networking Academy IX</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Required: 15
II. CISCO NETWORK PROFESSIONAL

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Configure, diagnose, and troubleshoot complex enterprise router and switch networking solutions including: network performance; advanced routing protocols; VPNs; IP-V6; advanced VLAN topologies; high availability and redundancy protocols; and LAN security.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 205</td>
<td>Implementing CISCO IP Routing (Route)</td>
<td>3</td>
</tr>
<tr>
<td>CIS 206</td>
<td>CISCO Networking Academy VI</td>
<td>3</td>
</tr>
<tr>
<td>CIS 207</td>
<td>CISCO Networking Academy VII</td>
<td>3</td>
</tr>
<tr>
<td>CIS 208</td>
<td>CISCO Networking Academy VIII</td>
<td>3</td>
</tr>
<tr>
<td>Total Required</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

III. COMPUTER PROGRAMMING

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Be proficient in at least one high-level programming language and an ability to use that language to implement software solutions in a variety of settings following the systems development life cycle (SDLC).

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 119</td>
<td>Program Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>CS 119L</td>
<td>Program Design and Development Lab</td>
<td>1</td>
</tr>
<tr>
<td>CS 181</td>
<td>Introduction to C++ Programming</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 182</td>
<td>Introduction to Java Programming</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 281</td>
<td>Intermediate C++ Programming and Fundamental Data Structures</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 282</td>
<td>Intermediate Java Programming and Fundamental Data Structures</td>
<td>4</td>
</tr>
<tr>
<td>Total Required</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

IV. COMPUTER SUPPORT TECHNICIAN

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Describe and demonstrate the ability to install, configure, upgrade, diagnose and troubleshoot a personal computer and its associated networking hardware and system software.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 120</td>
<td>Computer Maintenance and A+ Certification</td>
<td>3</td>
</tr>
<tr>
<td>CIS 121</td>
<td>Network Cabling Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIS 125</td>
<td>Network+ Certification</td>
<td>3</td>
</tr>
<tr>
<td>CIS 190</td>
<td>Windows Operating System</td>
<td>3</td>
</tr>
<tr>
<td>CIS 191</td>
<td>Linux Operating System</td>
<td>3</td>
</tr>
<tr>
<td>Total Required</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

V. CYBER SECURITY SPECIALIST

Program Learning Outcomes
Upon completion of this certificate, students will be able to:
• Perform system scan and reconnaissance to determine vulnerabilities, then create a report showing vulnerabilities and recommendations for rectifying the cited weaknesses.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 125</td>
<td>Network+ Certification</td>
<td>3</td>
</tr>
<tr>
<td>CIS 190</td>
<td>Windows Operating System</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIS 191</td>
<td>Linux Operating System</td>
<td>3</td>
</tr>
<tr>
<td>CIS 129</td>
<td>CISCO Networking Academy IX</td>
<td>3</td>
</tr>
<tr>
<td>CIS 263</td>
<td>Fundamentals of Network Security</td>
<td>3</td>
</tr>
<tr>
<td>CIS 264</td>
<td>Ethical Cybersecurity Hacking</td>
<td>3</td>
</tr>
<tr>
<td>CIS 265</td>
<td>Computer Forensics Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>Total Required</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

VI. WEB DESIGN

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Develop attractive, usable, mobile-friendly websites using current development technologies such as HTML/CSS, frameworks, and content management systems.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 211</td>
<td>Web Development I</td>
<td>3</td>
</tr>
<tr>
<td>CIS 213</td>
<td>Web Development II</td>
<td>3</td>
</tr>
<tr>
<td>CIS 225</td>
<td>Web Development Capstone</td>
<td>3</td>
</tr>
<tr>
<td>GD 126</td>
<td>Adobe Photoshop Digital Imaging</td>
<td>3</td>
</tr>
<tr>
<td>GD 217</td>
<td>Web Graphics</td>
<td>3</td>
</tr>
<tr>
<td>Total Required</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

VI. WEB PROGRAMMING

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Develop attractive, usable, mobile-friendly websites using current development technologies such as HTML/CSS, PHP/MySQL, frameworks, and content management systems.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 211</td>
<td>Web Development I</td>
<td>3</td>
</tr>
<tr>
<td>CIS 213</td>
<td>Web Development II</td>
<td>3</td>
</tr>
<tr>
<td>CIS 215</td>
<td>JavaScript Web Programming</td>
<td>3</td>
</tr>
<tr>
<td>CIS 219</td>
<td>PHP/MySQL Dynamic Web-Based Application</td>
<td>3</td>
</tr>
<tr>
<td>CS 119</td>
<td>Program Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>Total Required</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

VII. MECHATRONICS

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Design automatic devices and control systems which can respond to inputs from sensors with appropriate outputs in the form of motion, light, and sound.
• Design mechanical components and devices, and create prototype versions of them.
• Combine the above capabilities to design integrated electro-mechanical devices of arbitrary complexity.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS/ENGR 15 Intro to 3D Modeling</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CS/ENGR 19 Engineering Solid Modeling</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CS/ENGR 175 Mechatronics: Introduction to Microcontrollers and Robotics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CS/ENGR 176 Mechatronics: Prototype Design</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CS 181</td>
<td>Introduction to C++ Programming</td>
<td>4</td>
</tr>
<tr>
<td>CIS 267</td>
<td>Directed Work Experience in CIS</td>
<td>1-4</td>
</tr>
<tr>
<td>ENGR 182</td>
<td>Work Experience in Engineering Technology</td>
<td>1-3</td>
</tr>
<tr>
<td>ENGR 100</td>
<td>Introduction to Engineering Design</td>
<td>4</td>
</tr>
<tr>
<td>ET 110</td>
<td>Introduction to Basic Electronics</td>
<td>4</td>
</tr>
<tr>
<td>Total Required</td>
<td></td>
<td>22-25</td>
</tr>
</tbody>
</table>

Certificate of Achievement
Students who complete the requirements above qualify for a Certificate in Mechatronics. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT

This degree and certificate program provides entry level skills as well as upgrading and/or refining of existing skills of individuals employed in the field of Environmental Health and Safety Management. The curriculum prepares students for transfer to four-year institutions in an environmental technology or related major. Courses are designed for students pursuing careers in Environmental Management and Occupational Safety and Health with an emphasis on training, regulatory compliance and program development, consulting, pollution prevention, recycling, remediation, conservation, and program management.

CAREER OPPORTUNITIES

* Air Quality Engineer
  • Asbestos Materials Building Remover
  • Associate Toxic Waste Specialist
  • Chemical Handler
* Environmental Engineer
  • Environmental Hazardous Material Technician
  • Environmental Health and Safety Specialist
* Environmental Journalist
  • Environmental Lawyer
* Environmental Manager
  • Environmental Protection Specialist
  • Environmental Research – Test Technician
  • Game or Fishery Technician
  • Geologist
  • Health and Safety Technician
  • Industrial Hygiene Technician
  • Land Use and Planning Technician
  • Mold Remediation Technician
  • Occupational Health and Safety Technician
  • Pollution Control Technician
  • Recycling Coordinator
  • Risk Management Officer
  • Risk Management Technician
  • Safety Officer
Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Identify and interpret Federal, State and local regulations related to Environmental Health and Safety Management.
- Understand and analyze historical environmental laws and regulations which impact hazardous material management and their effect on the environment.
- Identify and interpret Federal, State and local regulations related to air pollution.
- Define and describe the components of Storm Water Pollution Prevention Plans in accordance with the Clean Water Act.
- Describe and define Regional Water Quality Control Board role in Clean Water Act over site and enforcement of National Pollution Discharge Elimination System (NPDES) permitting and inspections.
- Understand and analyze historical environmental laws and regulations which impact hazardous material management and their effect on the environment.
- Describe and apply terms common to the hazardous materials industry.
- Describe agencies that regulate specific hazardous materials.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHSM 100 Introduction to Environmental and Occupational Safety and Health (OSH) Technology</td>
<td>4</td>
</tr>
<tr>
<td>EHSM 110 Pollution Prevention</td>
<td>3</td>
</tr>
<tr>
<td>EHSM 150 Hazardous Waste Management Applications</td>
<td>4</td>
</tr>
<tr>
<td>EHSM 200 Hazardous Materials Management (HMM) Applications</td>
<td>4</td>
</tr>
<tr>
<td>EHSM 210 Industrial Wastewater and Stormwater Management</td>
<td>4</td>
</tr>
<tr>
<td>EHSM 215 Air Quality Management</td>
<td>3</td>
</tr>
<tr>
<td>EHSM 230 Safety and Emergency Response</td>
<td>4</td>
</tr>
<tr>
<td>EHSM 240 Cooperative Work Experience</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Total Required: 27-29

Certificate of Achievement
Students who complete the requirements above qualify for a Certificate in Environmental Technician. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Identify and evaluated hazardous material routes of entry, toxic effect, risk evaluation and control measures to reduce their exposure and effects.
- Describe and apply terms common to the hazardous materials industry.
- Apply California and Federal safety standards to assess worksites and recognize hazardous conditions and/or noncompliance.
- Assess and evaluate job processes to identify and implement appropriate risk management strategies.
- Describe agencies that regulate specific hazardous materials.
- Interpret Federal, State and Local regulations governing Construction Safety.
- Define and apply “safe work practices”, “worker Right to Know” and Community Right to Know” requirements.
- Identify and evaluated hazardous material routes of entry, toxic effect, risk evaluation and control measures to reduce their exposure and effects.
- Identify key mandatory components of an Injury Illness Prevention Plan (IIPP) in compliance with SB198.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHSM 100 Introduction to Environmental and Occupational Safety and Health (OSH) Technology</td>
<td>4</td>
</tr>
<tr>
<td>EHSM 130 Environmental/Occupational Health Effects of Hazardous Materials</td>
<td>3</td>
</tr>
<tr>
<td>EHSM 135 General Industry Safety Standards</td>
<td>3</td>
</tr>
<tr>
<td>EHSM 145 Construction Safety Standards</td>
<td>3</td>
</tr>
<tr>
<td>EHSM 200 Hazardous Materials Management (HMM) Applications</td>
<td>4</td>
</tr>
<tr>
<td>EHSM 201 Introduction to Industrial Hygiene and Occupational Health</td>
<td>4</td>
</tr>
<tr>
<td>EHSM 240 Cooperative Work Experience</td>
<td>1-4</td>
</tr>
</tbody>
</table>

Total Required: 19-22
Select two of the following:

- EHSM 145 Construction Safety Standards 3
- EHSM 205 Safety and Risk Management
  Administration 4
- EHSM 230 Hazwoper Certification 4

Total Required 6-7

Certificate of Achievement

Students who complete the requirements above qualify for a Certificate in Occupational Safety and Health (OSH) Technician. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

ORNAMENTAL HORTICULTURE

This degree program provides students with entry level skills, upgrading of existing skills, and preparation for further training. It is designed for those interested in careers in nursery and greenhouse management, landscape design and construction, grounds management, retail nursery operations, irrigation system design, installation and maintenance of interior plant and arboriculture and other related fields. Students will learn modern horticultural methods and procedures as well as the use of tools and equipment common to the field.

CAREER OPPORTUNITIES

- Agricultural Inspector
- Agricultural Researcher
- Arboretum/Park Director
- Arboriculture Technician
- Botanical Illustrator
- County/State Agricultural Advisor
- Environmental Designer
- Floral Designer
- Flower Shop Manager
- Golf Course Superintendent
- Golf Course Worker
- Grounds Maintenance Manager
- Grower/Production Manager
- Horticultural Journalist
- Irrigation Consultant
- Landscape Architect
- Landscape Contractor
- Landscape Designer
- Landscape Technician
- Nursery/Garden Center Manager
- Park Planner/Manager
- Plant Breeder/Propagator
- Sports Field Manager
- Turf Manager
- Urban Forester
- Water Auditor
- Water Conservationist

* Bachelor Degree or higher required.
† Bachelor Degree normally recommended.

I. ARBORICULTURE

This major encompasses urban forestry, professional tree care, and tree trimming. Students will learn care and pruning of landscape trees, palms and related plants as well as common fruit trees. Course work includes skill development in tree climbing and pruning techniques, basic tree maintenance, and principles of urban forestry. Graduates are employed by private tree care companies, public agencies, landscape contractors, wholesale and retail nurseries, or may be self-employed.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Describe proper and safe principles and practices of tree climbing.
- Describe the principles of tree biology and physiology for growth management.
- Demonstrate proper tree pruning procedures per industry standards.
- Identify common biotic and abiotic problems for trees common to Southern California landscapes and list appropriate control measures.
- Conduct a visual tree assessment for tree risk or value appraisal.
- Draft a tree preservation plan for a construction site.

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>OH 120 Fundamentals of Ornamental Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>OH 130 Plant Pest Control</td>
<td>3</td>
</tr>
<tr>
<td>OH 140 Soils</td>
<td>3</td>
</tr>
<tr>
<td>OH 170 Plant Materials: Trees and Shrubs</td>
<td>3</td>
</tr>
<tr>
<td>OH 260 Arboriculture</td>
<td>3</td>
</tr>
<tr>
<td>OH 290* Cooperative Work Experience Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two of the following:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>OH 263 Urban Forestry</td>
<td>1</td>
</tr>
<tr>
<td>OH 264 Safe Work Practices in Tree Climbing and Arboriculture</td>
<td>1</td>
</tr>
<tr>
<td>OH 266 Science in Practice for Arboriculture</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 110 Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 111 Entrepreneurship: Starting and Developing a Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 125 Business Law: Legal Environment of Business</td>
<td>3</td>
</tr>
</tbody>
</table>

Select nine units from the following:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>OH 102 Xeriscape: Water Conservation in the Landscape</td>
<td>2</td>
</tr>
<tr>
<td>OH 172 Introduction to Landscape Design</td>
<td>3</td>
</tr>
<tr>
<td>OH 174 Turf and Ground Cover Management</td>
<td>3</td>
</tr>
<tr>
<td>OH 221 Landscape Construction: Irrigation and Carpentry</td>
<td>3</td>
</tr>
<tr>
<td>OH 235 Principles of Landscape Irrigation</td>
<td>4</td>
</tr>
<tr>
<td>OH 250 Landscape Water Management</td>
<td>2</td>
</tr>
<tr>
<td>OH 255 Sustainable Urban Landscapes Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>OH 275 Diagnosing Horticultural Problems</td>
<td>3</td>
</tr>
<tr>
<td>OH 278 Business Management for Ornamental Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 120 Spanish I</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Required 32

Plus General Education Requirements

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

II. FLORAL DESIGN

This degree program is designed for those individuals seeking careers in the floral industry, or for those seeking to upgrade their existing skills and prepare for further training. Course work is directed toward skills, concepts and practices used in the commercial floral industry with an emphasis in hands-on training. There is also an emphasis on the business skills needed to succeed as a floral industry entrepreneur.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Identify and explain the principles and elements of design common to the retail floral industry and utilize these guidelines in the reproduction and construction of independent floral arrangements, events and decor.
- Identify, evaluate and discuss in correct industry vocabulary fresh floral product and permanent botanical materials, hard goods, and trends in European and Asian design influences.
- Prepare an original event proposal based on site analysis for a special occasion to include an appropriate wholesale budget, estimate design recipes, fresh and hard goods product.
- Compare and contrast retail florist businesses in shop operations, workstations, sales and consultation areas, visual displays, customer relations, and typical business practices including labor relations, insurance, advertising, accounting and license requirements.

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>OH 114 Floral Design I</td>
<td>3</td>
</tr>
<tr>
<td>OH 116 Floral Design II</td>
<td>3</td>
</tr>
<tr>
<td>OH 117 Wedding Design I</td>
<td>3</td>
</tr>
<tr>
<td>OH 118 Special Occasion Floral Design</td>
<td>3</td>
</tr>
<tr>
<td>OH 120 Fundamentals of Ornamental Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>OH 180 Plant Materials: Annuals and Perennials</td>
<td>3</td>
</tr>
<tr>
<td>OH 290* Cooperative Work Experience Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 110 Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 111 Entrepreneurship: Starting and Developing a Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 125 Business Law: Legal Environment of Business</td>
<td>3</td>
</tr>
</tbody>
</table>

Select nine units from the following:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 120 Two-Dimensional Design</td>
<td>3</td>
</tr>
<tr>
<td>ART 124 Drawing I</td>
<td>3</td>
</tr>
<tr>
<td>BUS 111 Entrepreneurship: Starting and Developing a Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 128 Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>OH 121 Plant Propagation</td>
<td>3</td>
</tr>
<tr>
<td>OH 170 Plant Materials: Trees and Shrubs</td>
<td>3</td>
</tr>
<tr>
<td>OH 240 Greenhouse Plant Production</td>
<td>3</td>
</tr>
<tr>
<td>OH 278 Business Management for Ornamental Horticulture</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Required 33

Plus General Education Requirements

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Floral Design. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.
III. GOLF COURSE AND SPORTS TURF MANAGEMENT

Students in this major pursue careers as golf course superintendents or sports turf managers. The program is intended for those individuals wishing to enter the field as well as those who desire to upgrade their existing skills. Students may also transfer to a four-year degree program in agronomy, turf management, or related field. Course work is designed to study environmentally sound solutions for the efficient production and management of golf and sports turf.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Demonstrate and practice standardized safety procedures as they apply to golf and sports turf management.
- Identify warm and cool season turf cultivars common to Southern California.
- Identify and manage primary and secondary noxious weeds.
- Identify and manage common biotic and abiotic problems associated with turf management in Southern California.
- Demonstrate knowledge of appropriate use and maintenance of equipment common to golf and sports turf management.
- Identify 86 trees and shrubs common to Southern California.
- Identify water quality impact on turfgrass and plant material species and the relationship to soil conditions.
- Demonstrate the impact of various water sources on golf course maintenance budgets.
- Using principles of irrigation hydraulic, calculate friction loss in pipe, determine proper pipe sizing using the friction factor and velocity limit method, and determine appropriate component sizing.
- Identify and describe the proper installation of irrigation system components.
- Using standard industry practices, develop guidelines and demonstrate the ability to perform proper fertilizing, pruning, mulch application and irrigation of Southern California landscapes.
- Identify and explain labor relations, business plan, and site and licensing requirements for the golf and sports turf industry.
- Demonstrate the ability to install concrete, masonry and plant material.

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>OH 120 Fundamentals of Ornamental Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>OH 130 Plant Pest Control</td>
<td>3</td>
</tr>
<tr>
<td>OH 140 Soils</td>
<td>3</td>
</tr>
<tr>
<td>OH 170 Plant Materials: Trees and Shrubs</td>
<td>3</td>
</tr>
<tr>
<td>OH 174 Turf and Ground Cover Management</td>
<td>3</td>
</tr>
<tr>
<td>OH 235 Principles of Landscape Irrigation</td>
<td>4</td>
</tr>
<tr>
<td>OH 290* Cooperative Work Experience Education</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Required</strong></td>
<td><strong>22</strong></td>
</tr>
</tbody>
</table>

Select one of the following:

- BUS 111 Entrepreneurship: Starting and Developing a Business 3
- BUS 126 Business Law: Legal Environment of Business 3

Select seven units from the following:

- OH 102 Xeriscape: Water Conservation in the Landscape 2
- OH 220 Landscape Construction: Concrete and Masonry 3
- OH 221 Landscape Construction: Irrigation and Carpentry 3
- OH 250 Landscape Water Management 2
- OH 265 Golf Course and Sports Turf Management 3
- OH 275 Diagnosing Horticultural Problems 3
- OH 278 Business Management for Ornamental Horticulture 3
- SPAN 120 Spanish I 3

Total Required: 32

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Golf Course and Sports Turf Management. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

IV. IRRIGATION TECHNOLOGY

This specialized field focuses on the design, installation and management of landscape irrigation systems. The program is designed for entry level students, those seeking to upgrade existing skills, or those wishing to transfer to a four-year degree program at Cal Poly or other institution. The use of current design theory, installation techniques, and management programs form the heart of the curriculum. Graduates are employed by landscape architects, irrigation consultants, landscape contractors, public agencies or may be self-employed.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Explain the relationships between plants and their soil and water environment including the use of recycled water.
- Demonstrate an understanding of landscape irrigation hydraulic.
- Identify irrigation system components and demonstrate their proper installation.
- Demonstrate a basic understanding of irrigation design principles.
- Demonstrate the ability to calculate an irrigation schedule.
- Demonstrate the ability to diagnose irrigation system problems related to valves, wiring and hydraulics.
- Explain the importance of, and best practices for, water conservation in regards to water sources, water quality and regulations.
- Gain practical experience working in the landscape industry.

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>OH 102 Xeriscape: Water Conservation in the Landscape</td>
<td>2</td>
</tr>
<tr>
<td>OH 120 Fundamentals of Ornamental Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>OH 140 Soils</td>
<td>3</td>
</tr>
<tr>
<td>OH 221 Landscape Construction: Irrigation and Carpentry</td>
<td>3</td>
</tr>
<tr>
<td>OH 225 Landscape Contracting</td>
<td>3</td>
</tr>
<tr>
<td>OH 235 Principles of Landscape Irrigation</td>
<td>4</td>
</tr>
<tr>
<td>OH 250 Landscape Water Management</td>
<td>2</td>
</tr>
<tr>
<td>OH 290* Cooperative Work Experience Education</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Required</strong></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>

Select one of the following:

- BUS 111 Entrepreneurship: Starting and Developing a Business 3
- BUS 125 Business Law: Legal Environment of Business 3

Select nine units from the following:

- OH 130 Plant Pest Control 3
- OH 170 Plant Materials: Trees and Shrubs 3
- OH 171 Landscape Drafting 1
- OH 172 Introduction to Landscape Design 3
- OH 174 Turf and Ground Cover Management 3
- OH 230 Irrigation System Design 3
- OH 278 Business Management for Ornamental Horticulture 3
- SPAN 120 Spanish I 5

Total Required: 32

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

**May also be offered at Southwestern College as LA 200**

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Irrigation Technology. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

V. LANDSCAPE DESIGN

This major provides students with a systematic, process-oriented approach to landscape design for residential landscapes. The curriculum is designed to investigate the current trends in landscape design and the technologies used in the construction of the projects. Course work is designed for entry level skills, upgrading of existing skills, and for transfer to four-year degree programs. Graduates are employed by landscape architects, landscape contractors, public agencies or may be self-employed.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Prepare conceptual landscape plans for residential clients.
- Measure a site then draft a site plan using hand drafting and computer aided drafting.
- Analyze project sites for assets and constraints.
- Create an aesthetically pleasing, sustainable, and feasible landscape design.
- Produce graphically pleasing landscape concept plans, elevations, and sections using both hand drafting and computer aided drafting techniques.
- Analyze site topography (including relief, slope and aspect) as required to prepare fine grading plans.
- Identify and describe the palate of materials used in landscape construction.
- Identify at least 250 trees, shrubs, annuals, and perennials used in Southern California landscaping.
- Demonstrate the ability to locate plants appropriately on a planting plan.
- Apply water conserving and sustainable landscape ideas to designs.
- Quantify the irrigation needs of the specified plants and prepare effective irrigation plans.
- Identify and explain business practices and legal considerations associated with a developing a landscape business.
- Gain practical experience working in the landscape industry.

Cuyamaca College Catalog 2019-2020
Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>OH 102</td>
<td>Xeriscape: Water Conservation in the Landscape</td>
<td>2</td>
</tr>
<tr>
<td>OH 170</td>
<td>Plant Materials: Trees and Shrubs</td>
<td>3</td>
</tr>
<tr>
<td>OH 171</td>
<td>Landscape Drafting</td>
<td>3</td>
</tr>
<tr>
<td>OH 172</td>
<td>Introduction to Landscape Design</td>
<td>3</td>
</tr>
<tr>
<td>OH 175</td>
<td>Advanced Landscape Design</td>
<td>3</td>
</tr>
<tr>
<td>OH 180</td>
<td>Plant Materials: Annuals and Perennials</td>
<td>3</td>
</tr>
<tr>
<td>OH/002*</td>
<td>Introduction to Computer-Aided Landscape Design</td>
<td>3</td>
</tr>
<tr>
<td>OH/002*</td>
<td>Advanced Computer-Aided Landscape Design</td>
<td>3</td>
</tr>
<tr>
<td>OH 220</td>
<td>Landscape Construction: Concrete and Masonry</td>
<td>3</td>
</tr>
<tr>
<td>OH 235</td>
<td>Principles of Landscape Irrigation</td>
<td>4</td>
</tr>
<tr>
<td>OH 278</td>
<td>Business Management for Ornamental Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>OH 290***</td>
<td>Cooperative Work Experience Education</td>
<td>3</td>
</tr>
<tr>
<td>Total Required</td>
<td></td>
<td>37</td>
</tr>
</tbody>
</table>

*May also be offered at Southwestern College as LA 200.
**May also be offered at Southwestern College as LA 201.
***Student must complete six units within the major at Cuyamaca College to be eligible for this course.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Landscape Design. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

VI. LANDSCAPE TECHNOLOGY

Landscape installation and management forms the focus of this program. Students will learn the latest methods, materials and techniques in the landscape industry. Those seeking careers in landscape technology are entering a challenging career field that requires knowledge of plant material, turfgrass, landscape and irrigation design, soils, pest control and landscape construction. A professional in the field has the opportunity to be involved in working with people as well as plants as the manager must direct and supervise employees, deal with clients and suppliers, and may become involved in professional organizations. Students entering the landscape industry, those already employed but seeking to upgrade their skills, may become involved in sustainable landscape design, construction and management. Students will use technology, horticultural crops in both natural and artificial environments common in the nursery industry.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Identify common biotic and abiotic problems common to Southern California landscapes and list appropriate control measures.
- Gain practical experience working in the landscape industry.

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>OH 120</td>
<td>Fundamentals of Ornamental Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>OH 130</td>
<td>Plant Pest Control</td>
<td>3</td>
</tr>
<tr>
<td>OH 140</td>
<td>Soils</td>
<td>3</td>
</tr>
<tr>
<td>OH 170</td>
<td>Plant Materials: Trees and Shrubs</td>
<td>3</td>
</tr>
<tr>
<td>OH 180</td>
<td>Plant Materials: Annuals and Perennials</td>
<td>3</td>
</tr>
<tr>
<td>OH 235</td>
<td>Principles of Landscape Irrigation</td>
<td>4</td>
</tr>
<tr>
<td>OH 250</td>
<td>Landscape Water Management</td>
<td>2</td>
</tr>
<tr>
<td>OH 290*</td>
<td>Cooperative Work Experience Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following:

- BUS 110 Introduction to Business 3
- BUS 111 Entrepreneurship: Starting and Developing a Business 3
- BUS 125 Business Law: Legal Environment of Business 3

Select five units from the following:

- OH 102 Xeriscape: Water Conservation in the Landscape 2
- OH 105 Edibles in Urban Landscapes 1
- OH 125 Landscape Technician Principles 1 1
- OH 126 Landscape Technician Principles 2 1
- OH 127 Landscape Technician Principles 3 1
- OH 172 Introduction to Landscape Design 3
- OH 173 Intermediate Landscape Design 3
- OH 174 Turf and Ground Cover Management 3
- OH 220 Landscape Construction: Concrete and Masonry 3
- OH 221 Landscape Construction: Irrigation and Carpentry 3
- OH 222 Landscape Design and Construction 1
- OH 225 Landscape Contracting 3
- OH 255 Sustainable Urban Landscapes Principles and Practices 3
- OH 260 Architecture 3
- OH 275 Diagnosing Horticultural Problems# 3
- OH 276 Business Management for Ornamental Horticulture 3

SPAN 120 Spanish I 5

Total Required 32-33

Plus General Education Requirements

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Landscape Technology. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

VII. NURSERY TECHNOLOGY

Students enrolled in this major pursue careers in the wholesale production and retail sales of horticultural crops. Course work will focus on plant propagation, greenhouse plant production, and horticultural practices related to production and sales of landscape and greenhouse plant material. Students entering the nursery industry, those already employed but seeking upgraded skills, and those wishing to transfer to other four-year degree programs will benefit from the curriculum. Graduates are employed by wholesale and retail nurseries, public agencies or may be self-employed.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Identify 250 trees, shrubs, annuals, perennials and turfgrass species commonly used in Southern California landscapes.
- Explain the principles of plant structure function and plant growth.
- Demonstrate an understanding of common plant propagation practices.
- Cultivate horticultural crops in both natural and artificial environments common in the nursery industry.
- Demonstrate an understanding of soil principles.
- Explain how to produce a business plan for the nursery industry.
- Gain practical experience working in the landscape industry.

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>OH 120</td>
<td>Fundamentals of Ornamental Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>OH 121</td>
<td>Plant Propagation</td>
<td>3</td>
</tr>
<tr>
<td>OH 130</td>
<td>Plant Pest Control</td>
<td>3</td>
</tr>
<tr>
<td>OH 140</td>
<td>Soils</td>
<td>3</td>
</tr>
<tr>
<td>OH 170</td>
<td>Plant Materials: Trees and Shrubs</td>
<td>3</td>
</tr>
<tr>
<td>OH 180</td>
<td>Plant Materials: Annuals and Perennials</td>
<td>3</td>
</tr>
<tr>
<td>OH 290*</td>
<td>Cooperative Work Experience Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following:

- BUS 110 Introduction to Business 3
- BUS 111 Entrepreneurship: Starting and Developing a Business 3
- BUS 125 Business Law: Legal Environment of Business 3

Select eight units from the following:

- BIO 122 The Secret Life of Plants 4
- OH 102 Xeriscape: Water Conservation in the Landscape 2
- OH 114 Floral Design I 3
- OH 172 Introduction to Landscape Design 3
- OH 240 Greenhouse Plant Production 3
- OH 278 Business Management for Ornamental Horticulture 3
- SPAN 120 Spanish I 5

Total Required 32-33

Plus General Education Requirements

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Nursery Technology. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

VIII. SUSTAINABLE URBAN LANDSCAPES

This curriculum is designed to investigate the current trends and provide practical experience in sustainable landscape design, construction and maintenance. Students will use technology, materials and methods that enhance the urban landscape with minimal input of labor and materials while reducing negative environmental impacts. Students entering the landscape industry, those already employed but seeking upgraded skills, and those wishing to transfer to other four-year degree programs will benefit from the curriculum. Graduates are employed by landscape contractors, landscape architects.
Certificate of Achievement
Students who complete only the major requirements above qualify for a Certificate in Sustainable Urban Landscapes. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

CERTIFICATE OF ACHIEVEMENT:
VITICULTURE TECHNICIAN APPRENTICE
This certificate is designed for students participating in the State of California approved Viticulture Technician Apprenticeship Program. The curriculum is required as part of the standards in this industry developed apprenticeship program. Apprentices completing the program will be prepared for employment in all aspects of the viticulture and winery industries.

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Understand the basic principles of integrated pest management.
• Identify the principle insect orders.
• Identify 10 common landscape and vineyard weeds.
• Understand the basic principles of irrigation system hydraulics in landscapes and vineyards.
• Understand the basic principles of irrigation design.
• Demonstrate the basic principles of irrigation construction in landscapes and vineyards.

Certificate Requirements:
Course Title Units
OH 105A Edibles in Urban Landscapes for Apprentices 1.5
OH 120A Fundamentals of Ornamental Horticulture for Apprentices 3
OH 130A Plant Pest Control for Apprentices 3
OH 235A Principles of Landscape Irrigation for Apprentices 4
Total Required 11.5

Select one of the following:
OH 140A Soils for Apprentices 3
OH 221A Landscape Construction: Irrigation and Carpentry for Apprentices 3
Total Required 6

Students who complete the requirements above qualify for a Certificate in Viticulture Technician Apprentice. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

CERTIFICATE OF SPECIALIZATION:
BASIC ORNAMENTAL HORTICULTURE
This certificate prepares students to work in the horticulture industry at an entry or intermediate level by providing them with basic knowledge of horticultural principles and practices. Upon completion, students will be prepared to work in one of many fields of horticulture, or choose to continue their studies and apply their earned credits to a degree or certificate of achievement.

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Understand the basic principles of plant growth.
• Identify 125 trees and shrub species commonly used in Southern California landscapes.
• Understand the basic principles of soil science as they relate to plant growth and plant nutrition.
• Apply basic horticultural knowledge to specific field of study in ornamental horticulture.
• Understand business principles as they apply to working in ornamental horticulture.

Certificate Requirements:
Course Title Units
OH 102 Fundamentals of Ornamental Horticulture 3
OH 170 Plant Materials: Trees and Shrubs 3

Select one of the following:
OH 130 Plant Pest Control 3
OH 140 Soils 3
OH 180 Plant Materials: Annuals and Perennials 3

Select one of the following:
BUS 110 Introduction to Business 3
BUS 111 Entrepreneurship: Starting and Developing a Business 3
BUS 125 Business Law: Legal Environment of Business 3

Select at least three units from the following:
OH 114 Floral Design I 3
OH 121 Plant Propagation 3
OH 125 Landscape Technician Principles 1
OH 126 Landscape Technician Principles 2 1
OH 127 Landscape Technician Principles 3 1
OH 172 Introduction to Landscape Design 3
OH 174 Turf and Ground Cover Management 3
OH 220 Landscape Construction: Concrete and Masonry 3
OH 221 Landscape Construction: Irrigation and Carpentry 3
OH 260 Arboriculture 3

Total Required 15

Students who complete the requirements above qualify for a Certificate in Basic Ornamental Horticulture. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.
SURVEYING

This degree program prepares students to enter the civil engineering field. Competency in care and operation of field instruments, solution of problems in the laboratory, drafting of land survey maps and civil engineering plans, and application of studies to field practice are thoroughly explored.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
- Measure angles and distances using electronic total stations and distance meters.
- Compile field data, adjusting for error from horizontal and vertical traverses.
- Create typical drawing title blocks accepted by local municipalities such as the City of San Diego.

HEALTH SCIENCE

BIOLOGICAL SCIENCES: PRE-ALLIED HEALTH

This program provides students with a pathway into allied health programs at baccalaureate institutions. Required science courses provide training in the methods of scientific inquiry, the fundamental principles of natural science, and the principle laws and theories governing the physical and life sciences. Recommended general education courses expose students to the physical and life sciences. Recommended general education courses expose students to the necessary base of knowledge that will serve them well in any of the allied health fields. This degree prepares students for transfer to a baccalaureate institution or for advanced studies in an allied health major. Prior to enrolling in several courses in this major, students must take general biology and general biology laboratory as prerequisites.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
- Explain the principles and laws of living systems with particular reference to human disease and human performance, including the role of scientific inquiry in life/medical science, cell theory, the hierarchy of structure and function in living organisms and principles of heredity.
- Describe the normal relationships between structure and function and relationships of human, alterations in normal structure/function that characterize disease; the structure, function, classification, and epidemiology of pathogenic microorganisms; and normal cellular and nutritional biochemical.
- Exhibit competency in the methods used to study living systems, with a focus on human biology including applying principles and procedures of research and experimental design, and gathering, organizing interpreting, evaluating and communicating data.
- Exhibit confidence and ability to function as a health care professional including the ability to conduct independent and collaborative investigation skills, communicate scientific information effectively in oral and written form, and utilize technology effectively and appropriately.
- Calculate and plot contours and other features found on a topographic map.
- Plot easements using bearings, distances and curve information.
- Recognize and apply the appropriate vocabulary of boundary law in discussion, reading, and writing legal descriptions of boundary.
- Describe and solve advanced private boundary and public lands boundary problems.
- Solve introductory property boundaries using title reports and record maps.

CAREER OPPORTUNITIES
- Geodetic Surveyor
- Geophysical Prospecting Surveyor
- Instruments Surveyor Assistant
- Land Surveyor
- Marine Surveyor
- Mine Surveyor
- Oil-Well Directional Surveyor

GENERAL STUDIES: LIFELONG HEALTH, WELL-BEING AND SELF-DEVELOPMENT

The Associate Degree in General Studies with an Area of Emphasis provides an opportunity for students to design a program of study meaningful and appropriate to their own needs and academic interests. The degree includes general education and a focused area of study. Students may choose to earn this degree for preparation for employment or for personal development.

REQUIREMENTS
To meet the General Studies degree requirements, a student must complete the following:

I. AS or AA General Education Requirements (see Degree Requirements and Transfer Information section)

AND

II. Areas of Emphasis
Choose a minimum of 18 units from one area of emphasis:

- Business and Technology
- Communication and Language Arts
- Humanities and Fine Arts
- Lifelong Health, Well-Being and Self-Development
- Science and Mathematics
- Social and Behavioral Sciences

Certificate of Achievement
Students who complete only the major requirements above qualify for a Certificate in Surveying. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

ASSOCIATE DEGREE PROGRAMS AND CERTIFICATES
I. KINESIOLOGY FOR TRANSFER (AA-T)
The Associate in Arts in Kinesiology for Transfer degree is designed to prepare students for transfer to a California State University (CSU) by fulfilling lower-division requirements for the disciplines of Kinesiology, Exercise Science and Physical Education. This major provides preparation for careers in physical therapy, coaching, personal training, and other allied health professions by including classes oriented toward fitness, wellness, and health promotion throughout the lifespan.

Upon successful completion of this program, students will be able to:

- List and define the five basic components of physical fitness.
- Describe the concepts of frequency, intensity, and time, and how they relate to personal fitness goals.
- List and describe opportunities for employment in the field.
- List options within the community for continued lifelong physical activity.
- Demonstrate competence in acquiring sound nutritional information.
- List options within the community for continued lifelong physical activity.
- List options within the community for continued lifelong physical activity.
- Demonstrate competence in acquiring sound nutritional information.
- List options within the community for continued lifelong physical activity.
- Demonstrate competence in acquiring sound nutritional information.
- List options within the community for continued lifelong physical activity.
- List options within the community for continued lifelong physical activity.
- Describe appropriate goals and activities for increasing the fitness of children.
- List options within the community for continued lifelong physical activity.
- Describe appropriate goals and activities for increasing the fitness of children.
- List and describe opportunities for employment in the field.
- Describe their field of interest and a course of instruction that will meet their professional needs.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- List and define the five basic components of physical fitness.
- Describe the concepts of frequency, intensity, and time, and how they relate to personal fitness goals.
- Outline a basic strategy for achieving fitness through the lifespan.
- List options within the community for continued lifelong physical activity.
- List options within the community for continued lifelong physical activity.
- Demonstrate competence in acquiring sound nutritional information.
- Demonstrate improvement in sport skills.
- List options within the community for continued lifelong physical activity.
- List options within the community for continued lifelong physical activity.
- List options within the community for continued lifelong physical activity.
- Describe appropriate goals and activities for increasing the fitness of children.
- List options within the community for continued lifelong physical activity.
- Describe their field of interest and a course of instruction that will meet their professional needs.

II. EXERCISE SCIENCE
This degree program is designed to prepare students for a variety of careers including education, physical therapy, coaching, personal training and other allied health professions by providing classes oriented toward fitness, wellness and health promotion throughout the lifespan. The major also provides preparation for transfer to a four-year college in physical education, exercise physiology, kinesiology, nutrition or athletic training, as well as teacher credentialing programs.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- List and define the five basic components of physical fitness.
- Describe the concepts of frequency, intensity, and time, and how they relate to personal fitness goals.
- Outline a basic strategy for achieving fitness through the lifespan.
- List options within the community for continued lifelong physical activity.
- List options within the community for continued lifelong physical activity.
- Demonstrate competence in acquiring sound nutritional information.
- Demonstrate improvement in sport skills.
- Outline appropriate goals and activities for increasing the fitness of children.
- Describe appropriate preventive measures as well as treatments for various sport injuries.
- List and describe opportunities for employment in the field.
- Describe their field of interest and a course of instruction that will meet their professional needs.

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 130 General Biology I</td>
<td>3</td>
</tr>
<tr>
<td>BIO 131 General Biology I Lab</td>
<td>1</td>
</tr>
<tr>
<td>BIO 140 Human Anatomy</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 102 Introduction to General, Organic and Biological Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 115 Fundamentals of Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 120 Preparation for General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 141 General Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>COMM 122 Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>ES 014ABC Body Building</td>
<td>1.5</td>
</tr>
<tr>
<td>ES 019ABC Physical Fitness</td>
<td>1.5</td>
</tr>
<tr>
<td>ES 250 Introduction to Kinesiology</td>
<td>3</td>
</tr>
<tr>
<td>ES 255 Care and Prevention of Athletic Injuries</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 158 Nutrition for Fitness and Sports</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 255 Science of Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>PSY 120 Introductory Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 120 Introductory Sociology</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Units for Major | 32.5-33.5
Select one of the following:

BIO 215  Statistics for Life Sciences  3
MATH 160  Elementary Statistics  4
PSY 215  Statistics for the Behavioral Sciences  3-4

Select two of the following (fulfills the activity requirement for the associate degree):

ES 001  Adapted Physical Exercise  1
ES 009ABC  Aerobic Dance Exercise  1
ES 019ABC  Physical Fitness  1.5
ES 026ABC  Yoga  1.5
ES 060ABC  Badminton  1
ES 076ABC  Tennis  1
ES 125ABC  Golf  1-1.5
ES 152ABC  Basketball  1
ES 170ABC  Soccer  1
ES 171ABC  Softball  1
ES 175ABC  Volleyball  1

**Total Required 37.5-40.5**

Plus General Education Requirements

*CStudents planning to transfer to SDSU must take NUTR 255.

**CERTIFICATE OF SPECIALIZATION:**

**RECREATIONAL LEADERSHIP–SCHOOL-BASED PROGRAMS**

This certificate offers specific training for entry-level positions or for advancement in child care and outdoor programs for children and families. It is designed to demonstrate an area of expertise that may be used to attain employment in areas of school-based recreation and fitness programs.

**Program Learning Outcomes**

Upon successful completion of this certificate, students will be able to:

- Describe and or demonstrate an hour of cooperative activity for children.
- Describe how principles learned in class may be applied to improve cardiovascular endurance, muscle strength, muscle endurance, and flexibility and body composition, (the five basic components of fitness) in children using walking as a primary conditioning activity.
- Investigate and list causes and risk factor associated with childhood obesity.
- Describe and prepare appropriate snacks for children.
- Demonstrate appropriate classroom organizational and management techniques.
- Demonstrate the ability to plan school-based recreational programs which deliberately intend to advance, stimulate or otherwise enhance children’s physical, emotional and social development in ways which are appropriate to their developmental level.
- Describe tested and proven teaching approaches to analyze and enhance movement competencies.

**Career Opportunities**

Students may find positions in an elementary or middle school, YMCA, recreation center, day or residential camp, or after school day care program. This is a great “stepping-stone” training for those who want to major in exercise science, recreation, elementary education or child development. Provides students with the expertise to enter the entry-level job market with knowledge of sound principles of fitness and developmentally appropriate recreation.

**Public Health Science for Transfer (AS-T)**

The Associate in Science in Public Health Science for Transfer provides a broad exposure to the field of public health and related disciplines. Upon completion of this degree, students will be able to recognize effective strategies aimed at reducing threats to the health of our communities and the public at large. The program lays the foundation for student preparation in development, implementation, and evaluation of public health services in various settings and with diverse populations.

The following is required for the AS-T in Public Health Science for Transfer degree:

1. 60 semester or 90 quarter CSU-transferable units.
2. California State University General Education Breadth pattern (CSU GE Breadth); or the Intersegmental General Education Transfer Curriculum (IGETC) pattern for the CSU;
3. Minimum of 18 semester or 27 quarter units in the major or area of emphasis;
4. Minimum grade point average (GPA) of 2.0;
5. Grade of "C" or better in all courses required for the major or area of emphasis.

**Program Learning Outcomes**

Upon completion of this certificate, students will be able to:

- Outline strategies for prevention, detection and control of infectious and chronic disease.
- Describe the organization, financing, and delivery of various medical and population-based services in the United States health care system.
- Explain the role of Public Health in addressing the following issues: disparities among different populations, aging, injuries, obesity, control of emerging diseases and epidemics, and emergency preparedness.
- Analyze reliable public data sources to find statistical and epidemiologic data on incidence, prevalence, and trends in drug, tobacco and alcohol use.
- Review recent public health literature detailing ways that race, socioeconomic status and gender become embodied in disparate health outcomes.
- Analyze the contribution of environmental conditions to disparate health outcomes, using case studies.

**Career Opportunities**

Career opportunities in Public Health are varied, but consist primarily of *administration,* teaching, *research,* program planning, *health promotion,* outreach, and administrative assistance duties in the following contexts:

Government agencies
Private Volunteer agencies
Hospitals
Clinics
International Relief programs
Environmental Health programs
Occupational Health programs

*Bachelor degree or higher recommended

**Associate in Science for Transfer Degree Requirements:**

Core Curriculum Requirements: (33 units):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 130</td>
<td>General Biology I</td>
<td>3</td>
</tr>
<tr>
<td>BIO 131</td>
<td>General Biology I Lab</td>
<td>1</td>
</tr>
<tr>
<td>BIO 140</td>
<td>Human Anatomy</td>
<td>5</td>
</tr>
<tr>
<td>BIO 141</td>
<td>Human Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BIO 141L</td>
<td>Lab in Human Physiology</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 115</td>
<td>Fundamentals of Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>HED 120</td>
<td>Personal Health and Lifestyles</td>
<td>3</td>
</tr>
<tr>
<td>HED 201</td>
<td>Introduction to Public Health</td>
<td>3</td>
</tr>
<tr>
<td>MATH 160</td>
<td>Elementary Statistics</td>
<td>4</td>
</tr>
<tr>
<td>PSY 120</td>
<td>Introductory Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 120</td>
<td>Introductory Sociology</td>
<td>3</td>
</tr>
<tr>
<td>ECON 120</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 121</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>HED 202</td>
<td>Health Professions and Organizations</td>
<td>3</td>
</tr>
<tr>
<td>HED 203</td>
<td>Substance Abuse and Public Health</td>
<td>3</td>
</tr>
<tr>
<td>HED 204</td>
<td>Health and Social Justice</td>
<td>3</td>
</tr>
<tr>
<td>PSY 134</td>
<td>Human Sexuality</td>
<td>3</td>
</tr>
<tr>
<td>SOC 120</td>
<td>Introductory Sociology</td>
<td>3</td>
</tr>
</tbody>
</table>

List A: Select one course from the following: (3 units):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 130</td>
<td>General Biology I</td>
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<tr>
<td>BIO 141L</td>
<td>Lab in Human Physiology</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 115</td>
<td>Fundamentals of Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>HED 120</td>
<td>Personal Health and Lifestyles</td>
<td>3</td>
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<tr>
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<tr>
<td>MATH 160</td>
<td>Elementary Statistics</td>
<td>4</td>
</tr>
<tr>
<td>PSY 120</td>
<td>Introductory Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Units for Major:** 33

**Total Units for Degree:** 60
HUMANITIES

GENERAL STUDIES: HUMANITIES AND FINE ARTS

The Associate Degree in General Studies with an Emphasis in Humanities and Fine Arts will be awarded to students upon completion of general education degree requirements and 16 units in this area. These courses emphasize the study of cultural, humanistic activities and artistic expression of human beings. Students will evaluate and interpret the ways in which people throughout the ages in different cultures have responded to themselves and the world around them through artistic and cultural creation. Students will develop an aesthetic awareness and incorporate these concepts when responding to themselves and the world around them.

Requirements

To meet the General Studies degree requirements, a student must complete the following:

I. AS or AA General Education Requirements (see Degree Requirements and Transfer Information section)

And

II. Areas of Emphasis

Choose a minimum of 18 units from one Area of Emphasis:

A. Business and Technology
B. Communication and Language Arts
C. Humanities and Fine Arts
D. Lifelong Health, Well-Being and Self-Development
E. Science and Mathematics
F. Social and Behavioral Sciences

The Associate in Arts in General Studies with an Emphasis in Humanities and Fine Arts will be awarded to students upon completion of general education degree requirements and 16 units in this area. These courses emphasize the study of cultural, humanistic activities and artistic expression of human beings. Students will evaluate and interpret the ways in which people throughout the ages in different cultures have responded to themselves and the world around them through artistic and cultural creation. Students will develop an aesthetic awareness and incorporate these concepts when responding to themselves and the world around them.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Demonstrate an awareness of the historical and philosophical contexts of representative areas, movements, media, works, or styles of cultural and/or intellectual creativity.
- Demonstrate an awareness of the historical and philosophical contexts of representative areas, movements, media, works, or styles of cultural and/or intellectual creativity.
- Demonstrate an awareness of the historical and philosophical contexts of representative areas, movements, media, works, or styles of cultural and/or intellectual creativity.
- Demonstrate an awareness of the historical and philosophical contexts of representative areas, movements, media, works, or styles of cultural and/or intellectual creativity.
- Demonstrate an awareness of the historical and philosophical contexts of representative areas, movements, media, works, or styles of cultural and/or intellectual creativity.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Recognize theories of historical interpretation.
- Describe historical and philosophical underpinnings of government systems and ideologies.
- Demonstrate how literature and the arts help us understand the past.
- Define historical periods and transitions.
- Distinguish between primary and secondary sources.

Associate in Arts Degree Requirements

Core Curriculum:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 108</td>
<td>Early American History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 109</td>
<td>Modern American History</td>
<td>3</td>
</tr>
</tbody>
</table>

List A: Select six units:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 100</td>
<td>Early World History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 105</td>
<td>Early Western Civilization</td>
<td>3</td>
</tr>
<tr>
<td>HIST 101</td>
<td>Modern World History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 106</td>
<td>Modern Western Civilization</td>
<td>3</td>
</tr>
</tbody>
</table>

List B: Select one course from each group:

Group 1: Select one of the following diversity courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARBC 145</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIST 118, 119, 130, 131, 132, 133, 180, 181</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or HIST 100 or 101 if not selected above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELG 116</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUS 110, 111, 115, 116, 117</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

List C: Select one course from each group:

Group 2: Select one course related to history:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ART 100, 140, 141, 143, 144, 145</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 122, 201, 202, 214, 217, 221, 222, 231, 232, 270, 271</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or IGETC CSU 37-39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or IGETC CSU 37-39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Transferable Elective Units 3-5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Units for Major 60

Total Units for Transferable Elective Units 3-5

Total Units for Degree 60

Please note: SDSU accepts this degree for students transferring into History B.A.

II. HISTORY

This major prepares students for transfer to four-year institutions for continued study in the field of history. The degree program fulfills the lower division requirements for most majors in the history department at San Diego State University and is typical of requirements at other four-year schools. For special requirements, transfer students should consult the catalog of the college or university of their choice. History classes provide useful background for students in such fields as history, education, political science and law. The history program offers a diverse transfer curriculum and is committed to equity-minded teaching in an atmosphere of academic excellence. History course offerings focus on global cultures, historically-underrepresented groups in the United States, and the development of American Institutions.
KUMeyaay Studies

The Associate in Arts program in KUMeyaay Studies is designed to provide an understanding of KUMeyaay history, culture and heritage. It is a multi-disciplinary degree, drawing from the sciences, humanities, world languages and history departments. Through specific coursework that encompasses on-site learning experiences, students will learn about the KUMeyaay Nation of San Diego’s East County region.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Communicate in the KUMeyaay language at a basic level in a variety of settings;
- Acquire an understanding of KUMeyaay heritage, history, society and traditions;
- Gain sensitivity, globalization and cultural competence of a unique group of people.

Associate in Arts Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 133</td>
<td>Ethnobotany</td>
<td>3</td>
</tr>
<tr>
<td>BIO 134</td>
<td>Ethnobotany/Ethnoecology Lab</td>
<td>1</td>
</tr>
<tr>
<td>HIST 132</td>
<td>KUMeyaay History I: Precontact - 1900</td>
<td>3</td>
</tr>
<tr>
<td>HIST 133</td>
<td>KUMeyaay History II: 1900 - Present</td>
<td>3</td>
</tr>
<tr>
<td>HUM 116</td>
<td>KUMeyaay Arts and Culture</td>
<td>3</td>
</tr>
<tr>
<td>NAKY 120</td>
<td>KUMeyaay I</td>
<td>4</td>
</tr>
<tr>
<td>NAKY 121</td>
<td>KUMeyaay II</td>
<td>4</td>
</tr>
</tbody>
</table>

List A, Select One:
Course not taken above (BIO 133 or BIO 134) | 3

List B: Select two:

- Total Required 24-25
- Plus General Education Requirements

Certificate of Specialization

Students who complete the requirements below qualify for a Certificate in KUMeyaay Studies. An official request must be filed with Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Program Learning Outcomes

Upon successful completion of this certificate, students will be able to:

- Communicate in the KUMeyaay language at a basic level in a variety of settings;
- Acquire an understanding of KUMeyaay heritage, history, society and traditions;
- Gain sensitivity, globalization and cultural competence of a unique peoples.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
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<tbody>
<tr>
<td>BIO 133*</td>
<td>Ethnobotany</td>
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<td>BIO 134</td>
<td>Ethnobotany/Ethnoecology Lab</td>
<td>1</td>
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<tr>
<td>HIST 132</td>
<td>KUMeyaay History I: Precontact - 1900</td>
<td>3</td>
</tr>
<tr>
<td>HIST 133</td>
<td>KUMeyaay History II: 1900 - Present</td>
<td>3</td>
</tr>
<tr>
<td>HUM 116</td>
<td>KUMeyaay Arts and Culture</td>
<td>3</td>
</tr>
<tr>
<td>NAKY 120</td>
<td>KUMeyaay I</td>
<td>4</td>
</tr>
<tr>
<td>NAKY 121</td>
<td>KUMeyaay II</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following:

- BIO 133 Ethnobotany | 3
- HUM 116 KUMeyaay Arts and Culture | 3
- NAKY 120 KUMeyaay I | 4
- NAKY 121 KUMeyaay II | 4

Total Required 13-14

*BIO 133 may be counted one time only.

Associate in Arts Degree Requirements:

Core Curriculum: Select two:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 110</td>
<td>A General Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 130</td>
<td>Logic</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 140</td>
<td>Problems in Ethics</td>
<td>3</td>
</tr>
</tbody>
</table>

List A: Select one:
Any course from Core not used | 3

List B: Select two:

- Any course from List A not used | 3
- HIST 105 | Early Western Civilization | 3
- HIST 106 | Modern Western Civilization | 3
- PHIL 170 | Philosophy of Religion: A Cross-Cultural Introduction | 3
- RELG 120 | World Religions | 3

Associate in Philosophy for Transfer

The Associate in Philosophy for Transfer (AA-T in Philosophy) deals with fundamental issues that have long haunted thinkers for many centuries. The major explores and seeks to understand values and the nature of reality by examining and questioning existence and experience. The degree prepares students for undergraduate study in philosophy.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Identify and discuss the principle questions of universal concern raised in philosophy, including but not limited to the following: What is knowledge? Is there meaning to life? Does free will exist? Why should I be moral?
- Implement critical thinking techniques to enhance reading and writing skills.
- Identify, analyze and discuss cross-cultural perspectives relating to the philosophical issues being considered.
- Demonstrate philosophical thinking by correct use of terminology/argumentation in evaluating various themes discussed.

Associate in Arts Degree Requirements:

Core Curriculum: Select two:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 110</td>
<td>A General Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 130</td>
<td>Logic</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 140</td>
<td>Problems in Ethics</td>
<td>3</td>
</tr>
</tbody>
</table>

List A: Select one:
Any course from Core not used | 3

List B: Select two:

- Any course from List A not used | 3
- HIST 105 | Early Western Civilization | 3
- HIST 106 | Modern Western Civilization | 3
- PHIL 170 | Philosophy of Religion: A Cross-Cultural Introduction | 3
- RELG 120 | World Religions | 3

Historians

Bachelor Degree or higher required

Associate in Arts Degree Requirements: Select twelve units from any two of the following sequences:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 100</td>
<td>Early World History</td>
<td>6</td>
</tr>
<tr>
<td>HIST 101</td>
<td>Modern World History</td>
<td>6</td>
</tr>
<tr>
<td>HIST 105</td>
<td>Early Western Civilization</td>
<td>6</td>
</tr>
<tr>
<td>HIST 106</td>
<td>Modern Western Civilization</td>
<td>6</td>
</tr>
<tr>
<td>HIST 108</td>
<td>Early American History</td>
<td>6</td>
</tr>
<tr>
<td>HIST 109</td>
<td>Modern American History</td>
<td>6</td>
</tr>
</tbody>
</table>

Select six units from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 114</td>
<td>Comparative History of the Early Americas</td>
<td>3</td>
</tr>
<tr>
<td>HIST 115</td>
<td>Comparative History of the Modern Americas</td>
<td>3</td>
</tr>
<tr>
<td>HIST 118</td>
<td>U.S. History: Chicano/Chicana Perspectives I</td>
<td>3</td>
</tr>
<tr>
<td>HIST 119</td>
<td>U.S. History: Chicano/Chicana Perspectives II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 122</td>
<td>Women in Early American History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 123</td>
<td>Women in Modern American History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 124</td>
<td>History of California</td>
<td>3</td>
</tr>
<tr>
<td>HIST 148</td>
<td>Emergence of the Modern Middle East</td>
<td>3</td>
</tr>
<tr>
<td>HIST 180</td>
<td>U.S. History: Black Perspectives I</td>
<td>3</td>
</tr>
<tr>
<td>HIST 181</td>
<td>U.S. History: Black Perspectives II</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Required 18

Plus General Education Requirements

Recommended Electives:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 120, 140</td>
<td>ART 100, 140, 141, 143, 144, 145</td>
<td>145</td>
</tr>
<tr>
<td>ENGL 122</td>
<td>221, 222, 231, 232, 236, 238</td>
<td>HIST 118, 122, 123, 124, 130, 131, 132, 133</td>
</tr>
<tr>
<td>MUS 110, 111, 116</td>
<td>PHIL 160, 170</td>
<td>POSC 120, 121, 124, 130, 140</td>
</tr>
</tbody>
</table>

Associate Degree Programs and Certificates
HUMANITIES • LANGUAGE AND COMMUNICATION

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Demonstrate conversational fluency. Students will be able to engage in rich dialogue exchanges and share advanced narratives and complex concepts using ASL.
• Comprehend and use grammar structures and conventions as they apply to dialogue exchanges.
• Demonstrate an understanding of Deaf culture, cultural behaviors, values and norms; clearly explain cultural tenets and interact comfortably and appropriately with Deaf people and the cultural community in a wide range of settings, from personal to professional.

HUMANITIES AND FINE ARTS

The Associate Degree in University Studies with an Area of Emphasis is intended to accommodate the differing requirements of a wide variety of transfer institutions and major options. Because admission and major preparation requirements vary at each four-year transfer institution, courses used to complete this degree should be selected with the assistance of a counselor. The completion of the University Studies Degree does not guarantee acceptance into either a baccalaureate major or a four-year institution.

REQUIREMENTS:

I. California State University (CSU) General Education Breadth
1. Complete CSU General Education Breadth (see Degree Requirements and Transfer Information section).
2. Earn a grade of "C" or better in all IGETC courses.
3. Credit earned through external examinations, i.e., AP, will be applied in accordance with Cuyamaca College policies. Please note: This may be different than how the external exam is used on an IGETC certification.
4. Complete a minimum of 18 units in an Area of Emphasis (listed below).
5. Complete a minimum of 60 degree applicable CSU transferable semester units.

II. Intersegmental General Education Transfer Curriculum (IGETC) for CSU or UC
1. Complete IGETC Certification (see Degree Requirements and Transfer Information section).
2. Earn a grade of "C" or better in all IGETC courses.
3. Credit earned through external examinations, i.e., AP, will be applied in accordance with Cuyamaca College policies. Please note: This may be different than how the external exam is used on an IGETC certification.
4. Complete a minimum of 18 units in an Area of Emphasis (listed below).
5. Complete a minimum of 60 degree applicable UC transferable semester units for UC University Studies.
6. Earn a cumulative GPA of 2.0 in all college course work completed.
7. Meet Cuyamaca College residence requirements for graduation (see Admission Information).

AND

III. Area of Emphasis
A. Business and Economics
B. Communication and Language Arts
C. Humanities and Fine Arts
D. Science and Mathematics
E. Social and Behavioral Sciences

While 18 units are required in a specific area to meet the requirements of the degree, it is strongly recommended that as many lower division preparation for the major courses as possible be completed at the community college prior to transfer. Some baccalaureate majors and four-year institutions require a higher GPA than is necessary for the associate degree. Courses that are not UC-transferable will not be used in the UC University Studies Area of Emphasis Degrees. Completion of the University Studies degree does not guarantee admission to a four-year institution.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Analyze the principle elements of representative examples of art, architecture, literature, theater, philosophy, music, dance, film, or other relevant areas of cultural and/or intellectual creativity.
• Demonstrate an awareness of the historical and philosophical contexts of representative areas, movements, media, works, or styles of cultural and/or intellectual creativity.
• Employ the language, concepts and methods of interpretive criticism as applicable to the respective categories of human creativity.
• When applicable, apply artistic processes and skills as a creative expression, using a variety of media to communicate meaning and intent in original works of art.

Humanities
ARAM 120, 121, 220
ARKC 120, 121, 122, 123, 220, 221, 254
ART 140, 141, 143, 145, 146, 149
ASL 120, 121, 140, 220, 221
CHIN 120, 121, 220, 221, 250, 251
ENGL 122, 201, 202, 214, 217, 221, 222, 231, 232, 270, 271
FREN 120, 121, 220, 221
HIST 100, 101, 105, 106
HUM 110, 115, 116, 120, 140, 155
ITAL 120, 121, 220
MATH 120, 121, 220
PHIL 110, 115, 117, 140, 160, 170
RELG 120, 130, 160, 170
SPAN 120, 121, 141, 145*, 220, 221, 250, 251

Fine Arts
ART 100, 120, 124, 125, 129, 140, 141, 143, 144, 145, 146, 148*, 241, 242
MUS 110, 111, 115, 116, 117
THTR 110

* Course not UC transferable
Associate Degree Programs and Certificates

Cuyamaca College Catalog 2019-2020

+ Social Work
+ Social Work Aide
+ Special Education Classroom Aide
+ Teacher
+ Bachelor degree or higher required
* Certification required

**Certificate of Achievement**
Students who complete the requirements above qualify for a Certificate in American Sign Language. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**ARABIC STUDIES**

The Associate in Arts in Arabic Studies is designed to provide a greater understanding of the Arabic language, history, culture and heritage, with particular emphasis on reading, writing and speaking the Arabic language. The Arabic Studies degree prepares students for career opportunities that require competency in the Arabic language. Through specific coursework for this degree, students will have a deeper appreciation and understanding of Arabic heritage and civilization.

**Program Outcomes**
Upon successful completion of this program, students will be able to:
• Communicate in the Arabic language at the intermediate level in a variety of settings.
• Acquire an understanding of Arabic civilization and heritage.
• Gain sensitivity, globalism and cultural competence.

**Associate in Arts Degree Requirements:**

**Course Title**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARBC 120</td>
<td>Arabic I</td>
<td>5</td>
</tr>
<tr>
<td>ARBC 121</td>
<td>Arabic II</td>
<td>5</td>
</tr>
<tr>
<td>ARBC 145</td>
<td>Arabic Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ARBC 122</td>
<td>Arabic for the Arabic Speaker I</td>
<td>5</td>
</tr>
<tr>
<td>ARBC 220</td>
<td>Arabic III</td>
<td>5</td>
</tr>
<tr>
<td>ARBC 123</td>
<td>Arabic for the Arabic Speaker II</td>
<td>5</td>
</tr>
<tr>
<td>ARBC 221</td>
<td>Arabic IV</td>
<td>5</td>
</tr>
<tr>
<td>ARBC 250</td>
<td>Conversational Arabic I</td>
<td>3</td>
</tr>
<tr>
<td>ARBC 254</td>
<td>Conversational Iraqi Dialect</td>
<td>3</td>
</tr>
<tr>
<td>ARBC 251</td>
<td>Conversational Arabic II</td>
<td>3</td>
</tr>
<tr>
<td>Total Required</td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>Plus General Education Requirements</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Certificate of Achievement**

This certificate is designed for students who want to acquire advanced expressive and receptive signing skills, as well as develop a greater awareness of the Deaf community and Deaf culture. The emphasis is on paraprofessional vocations and preparation for continued study in the subject. Upon completion, students may wish to transfer to an Interpreter Certification, American Sign Language, or Deaf Studies program or a four year university to continue their studies. It is recommended that students interested in this certificate contact the department faculty.

**Program Learning Outcomes**
Upon successful completion of this certificate, students will be able to:
• Demonstrate the acquisition of expressive skills by translating and performing a five-minute song or story in American Sign Language.
• Demonstrate the acquisition of receptive skills by answering comprehension questions based on a three minute signed presentation with 60 percent accuracy.
• Compare and contrast American Deaf cultural traditions with American hearing cultural traditions.
• Describe the evolution of medical technology in the Deaf community.
• Demonstrate the use of current communication technology as used by the Deaf Community, e.g., videophones.

**Certificate Requirements:**

**Course Title**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASL 120</td>
<td>American Sign Language I</td>
<td>4</td>
</tr>
<tr>
<td>ASL 121</td>
<td>American Sign Language II</td>
<td>4</td>
</tr>
<tr>
<td>ASL 220</td>
<td>American Sign Language III</td>
<td>4</td>
</tr>
<tr>
<td>ASL 221</td>
<td>American Sign Language IV</td>
<td>4</td>
</tr>
<tr>
<td>Total Required</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

Select five to six units from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASL 125</td>
<td>American Sign Language with Infants and Toddlers</td>
<td>1</td>
</tr>
<tr>
<td>ASL 126</td>
<td>American Sign Language with School Age Children</td>
<td>1</td>
</tr>
<tr>
<td>ASL 130</td>
<td>American Sign Language: Fingerspelling</td>
<td>3</td>
</tr>
<tr>
<td>ASL 140</td>
<td>Inside Deaf Culture</td>
<td>3</td>
</tr>
<tr>
<td>Total Required</td>
<td></td>
<td>5-6</td>
</tr>
</tbody>
</table>

**Associate Degree for Transfer**

This degree program is designed to provide students with a broad base of communication courses that provide training for entry into occupations in which public contact and verbal skills are important. Students will explore and analyze verbal communication methods, as well as develop and advance their oral communication skills. Students completing this degree may be interested in pursuing careers in community service, sales, performing arts, teaching, and other communication professions.

The following is required for the AA-T in Communication Studies for Transfer degree:

1. Minimum of 60 semester or 90 quarter CSU-transferable units.
2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
3. Minimum of 18 semester or 27 quarter units in the major.
4. A grade of “C” or better in all courses required for the major.
5. Certified completion of the California State University General Education (CSU GE) Breadth pattern or the Intersegmental General Education Transfer Curriculum (IGETC) pattern; see Degree Requirements and Transfer Information section for more information. Note: If following IGETC, IGETC-CSU must be followed for admission to a CSU.

**Program Learning Outcomes**
Upon successful completion of this program, students will be able to:
• Research, write and deliver an effective public speech.
• Analyze, critique, and improve interpersonal relationships in both personal and professional contexts.
• Describe and apply specific skills to the communication process, including perception, emotion, listening and conflict management.
• Describe and interpret communication similarities and differences between people from varying cultural backgrounds.
• Interact with others in group settings to collect, analyze, and synthesize information.
• Interact respectfully with others who hold divergent perspectives.
• Critically analyze, critique and synthesize arguments and information.

**Certificate of Achievement**

Students who complete the requirements above qualify for a Certificate in Arabic Studies. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**Associate in Arts Degree Requirements:**

**Course Title**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 122</td>
<td>Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>COMM 137</td>
<td>Critical Thinking in Group Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 145</td>
<td>Argumentation</td>
<td>3</td>
</tr>
<tr>
<td>Total B: Select two of the following:</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>COMM 110</td>
<td>Introduction to Mass Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 124</td>
<td>Speech and Debate Competition III</td>
<td>3</td>
</tr>
<tr>
<td>Any course from List A not selected above</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Total Units for Major</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Total Units for CSU GE Breadth</td>
<td></td>
<td>40-41</td>
</tr>
<tr>
<td>Total Units for IGETC-Csu</td>
<td></td>
<td>32-34</td>
</tr>
<tr>
<td>Total Transferable Elective Units</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Total Units for Degree</td>
<td></td>
<td>60</td>
</tr>
</tbody>
</table>

Please note: SDSU accepts this degree for students transferring into the Health Communication Major and the Communication Major in Applied Arts and Sciences emphases.
II. COMMUNICATION
This degree program is designed to provide students with a broad base of communication classes that provide training for entry into occupations in which verbal skills are important. Major requirements for the four-year degree in Communication vary from institution to institution. It is recommended that students check with transfer institutions for specific requirements.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Research, write and deliver an effective public speech.
• Analyze, critique, and improve interpersonal relationships in both personal and professional contexts.
• Describe and apply specific skills to the communication process, including perception, emotion, listening and conflict management.
• Describe and interpret communication similarities and differences between people from varying cultural backgrounds.
• Interact with others in group settings to collect, analyze, and synthesize information.
• Interact respectfully with others who hold divergent perspectives.
• Critically analyze, critique and synthesize arguments and information.

CAREER OPPORTUNITIES
Advertising Assistant
Announcer
Arts Administrator
Communication Consultant
Journalist
Lawyer
Lobbyist
Narrator
Politician
Public Information Officer
Public Relations Assistant
Teacher/Instructor/College Professor

Associate in Arts Degree Requirements:

Course Title Units
COMM 120 Interpersonal Communication 3
COMM 122 Public Speaking 3
COMM 123 Advanced Public Speaking 3
COMM 145 Argumentation 3
Select six units from the following:
COMM 110 Introduction to Mass Communication 3
COMM 124 Intercultural Communication 3
COMM 137 Critical Thinking in Group Communication 3

Total Required 12
Plus General Education Requirements

ENGLISH

Associate Degree for Transfer™

I. ENGLISH FOR TRANSFER (AA-T)
The English Department at Cuyamaca College provides students in the local community an opportunity to develop the skills a wide range of employers seek: strong communication, analytical reading, critical thinking, attention to detail, and the ability to work in diverse teams. The department encourages students to engage deeply with literature and nonfiction texts as well as other forms of cultural production, and to account for how those texts inform our ideologies, norms, and values.

The following is required for the AA-T in English for Transfer degree:
1. Minimum of 60 semester or 90 quarter CSU-transferable units.
2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
3. Minimum of 18 semester or 27 quarter units in the major.
4. A grade of “C” or better in all courses required for the major.

5. Certified completion of the California State University General Education (CSU GE) Breadth pattern OR the Intersegmental General Education Transfer Curriculum (IGETC) pattern; see Degree Requirements and Transfer Information section for more information. Note: If following IGETC, IGETC-CSU must be followed for admission to a CSU.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Demonstrate the ability to express themselves effectively in largely error-free writing in multiple modes and genres.
• Demonstrate the ability to analyze a variety of texts including fiction and non-fiction.
• Utilize the writing process to approach, complete and refine writing projects.
• Demonstrate familiarity with major British, American, and world authors and literary movements.
• Locate, evaluate, and effectively integrate outside research into their writing to support their explicit theses while avoiding plagiarism and adhering to scholarly standards for citation of information.

Associate in Arts Degree Requirements:

Core Curriculum:

Course Title Units
ENGL 122 Introduction to Literature 3
ENGL 124 Advanced Composition: Critical Reasoning and Writing 3

List A: Select two of the following:
ENGL 221 British Literature I 3
ENGL 222 British Literature II 3
ENGL 231 American Literature I 3
ENGL 232 American Literature II 3
ENGL 270 World Literature I 3
ENGL 271 World Literature II 3

List B: Select one of the following:
ENGL 126 Creative Writing 3
ENGL 201 Images of Women in Literature 3
ENGL 202 Introduction to Film as Literature 3
ENGL 214 Masterpieces of Drama 3
ENGL 217 Fantasy and Science Fiction 3
Any course from List A not selected above 3

List C: Select one of the following:
ENGL 238 Chicano/Chicana Literature 3
ENGL 238 Black Literature 3
ARAM 120 Aramaic I 5
ARAM 121 Aramaic II 5
ARAM 220 Aramaic III 5
ARBQ 121 Arabic I 5
ARBQ 121 Arabic II 5
ARBQ 220 Arabic III 5
ARBQ 221 Arabic IV 5
ASL 120 American Sign Language I 4
ASL 121 American Sign Language II 4
ASL 220 American Sign Language III 4
ASL 221 American Sign Language IV 4
BUS 128 Business Communication 3
FREN 120 French I 5
FREN 121 French II 5
FREN 220 French III 5

FREN 221 French IV 5
HUM 110 Principles of the Humanities 3
ITAL 120 Italian I 5
ITAL 121 Italian II 5
ITAL 220 Italian III 5
SPAN 120 Spanish I 5
SPAN 121 Spanish II 5
SPAN 220 Spanish III 5
SPAN 221 Spanish IV 5
THTR 110 Introduction to the Theatre 3

Any course from Lists A or B not selected above 3

Total Units for Major (6 units may double counted with GE) 18-20
Total Units for IGETC-CSU or CSU GE Breadth 37-39
Total Transferable Elective Units 13-15-17
Total Units for Degree 60

Please note: SDSU accepts this degree for students transferring into English-Applied Arts and Sciences major.

II. ENGLISH
This major fulfills lower division requirements at most four-year colleges and universities and thus provides a broad-based foundation for transfer. For particular requirements, transfer students should consult the appropriate four-year college or university catalog.

The English Department at Cuyamaca College provides students in the local community an opportunity to develop the skills a wide range of employers seek: strong communication, analytical reading, critical thinking, attention to detail, and the ability to work in diverse teams. The department encourages students to engage deeply with literature and nonfiction texts as well as other forms of cultural production, and to account for how those texts inform our ideologies, norms, and values.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Demonstrate the ability to express themselves effectively in largely error-free writing in multiple modes and genres.
• Demonstrate the ability to analyze a variety of texts including fiction and non-fiction.
• Utilize the writing process to approach, complete and refine writing projects.
• Demonstrate familiarity with major British, American, and world authors and literary movements.
• Locate, evaluate, and effectively integrate outside research into their writing to support their explicit theses while avoiding plagiarism and adhering to scholarly standards for citation of information.

CAREER OPPORTUNITIES
English majors have gone on to work in a variety of fields, including communications and publishing. In fact, English majors work in virtually every profession there is. Many English majors enter the following careers:
Advertising Manager
Announcer
Editor
Freelance Writer
Interpreter & Translator
Lawyer
Librarian
News Reporter
Paralegal
Public Relations Manager
Public Relations Specialist
Teacher
Technical Writer
Writer & Author
GENERAL STUDIES: COMMUNICATION AND LANGUAGE ARTS

The Associate Degree in General Studies with
an Area of Emphasis provides an opportunity for
students to design a program of study meaningful
and appropriate to their own needs and academic
interests. The degree includes general education
and a focused area of study. Students may
choose to earn this degree for preparation for
employment or for personal development.

REQUIREMENTS
To meet the General Studies degree requirements,
a student must complete the following:

I. AS or AA General Education
Requirements (see Degree Requirements
and Transfer Information section) AND

II. Areas of Emphasis
Choose a minimum of 18 units from one
Area of Emphasis:
A. Business and Technology
B. Communication and Language Arts
C. Humanities and Fine Arts
D. Lifelong Health, Well-Being and Self-
Development
E. Science and Mathematics
F. Social and Behavioral Sciences

The Associate in Arts in General Studies
with an Emphasis in Communication and
Language Arts will be awarded to students
upon completion of general education degree
requirements and 18 units in this area. These
courses emphasize the study of how language
works to express human ideas and feelings.
Students will explore and analyze written and
grammatical structures to communicate
about situations dealing with nature, city life,
professions and occupations, the arts,
cultural perspectives, and a focused area of study.
Students may choose to earn this degree for preparation for
employment or for personal development.

Program Learning Outcomes
Upon successful completion of this program,
students will be able to:

• Demonstrate the ability to write effectively.
• Demonstrate the ability to locate relevant,
  reliable information and read it effectively.
• Organize thoughts and ideas in both oral and
  written format.
• Communicate effectively with diverse
  audiences.

Communication
BUS 128
COMM 110, 120, 122, 123, 124, 130, 135, 137, 145

Language Arts
ARAM 120, 121, 220
ARBC 120, 121, 122, 123, 220, 221, 250, 251, 254
ASL 120, 121, 220, 221
BUS 128
CHIN 120, 121, 220, 221, 250, 251
ENGL 120, 121, 122, 201, 202, 214, 217, 221, 222, 231, 232, 270, 271
FREN 120, 121, 220, 221, 250, 251
ITAL 120, 121, 220
NAKY 120, 121, 220
SPAN 120, 121, 220, 221, 250, 251

I. SPANISH FOR TRANSFER (AA-T)
The Associate in Arts in Spanish for Transfer
degree is designed to provide students with
communicative skills in Spanish, as well as a
greater understanding of Spanish culture and
civilization. This degree prepares students to
transfer to a California State University.

The following is required for the AA-T in Spanish
for Transfer degree:
1. Minimum of 60 semester or 90 quarter
   CSU-transferable units.
2. Minimum grade point average (GPA) of at
   least 2.0 in all CSU-transferable coursework.
3. Minimum of 18 semester or 27 quarter units
   in the major.
4. A grade of “C” or better in all courses
   required for the major.
5. Certified completion of the California State
   University General Education (CSU GE)
   Breadth pattern OR the Intersegmental
   General Education Transfer Curriculum
   (IGETC) pattern, see Degree Requirements
   and Transfer Information section for more
   information. Note: If following IGETC, IGETC-
   CSU must be followed for admission to a CSU.

Program Learning Outcomes
Upon successful completion of this program,
students will be able to:

• Utilize more complex vocabulary and
  grammatical structures to communicate
  and discuss hypothetical situations dealing
  with nature, city life, health and well-being,
  professions and occupations, the arts,
  current events, and politics.

• Utilize more complex vocabulary and
  grammatical structures to write about
  situations dealing with nature, city life,
  health and well-being, professions and occupations,
  the arts, current events, and politics.

• Use language and vocabulary skills
developed in class to read, analyze, and
  interpret authentic texts.

Associate in Arts Degree Requirements:

Core Curriculum:
Course Title Units
SPAN 120 Spanish I 5
SPAN 121 Spanish II 5
SPAN 220 Spanish III 5
SPAN 221 Spanish IV 5

List A: Select one of the following:
HIST 118 U.S. History: Chicano/Chicana
Perspectives I 3
HIST 119 U.S. History: Chicano/Chicana
Perspectives II 3
SPAN 141 Spanish and Latin American
Cultures 3
SPAN 145 Hispanic Civilizations 3
SPAN 250* Conversational Spanish I 3
SPAN 251* Conversational Spanish II 3

Total Units for Major (9 units may
be double-counted with GE) 23
Total Units for CSU GE Breadth
or IGETC-CSU 37-39
Total Transferable Elective Units 7-9
Total Units for Degree 60

SPANISH

Associate Degree for Transfer™

Cuyamaca College Catalog 2019-2020
Associate Degree Programs and Certificates 95

Associate in Arts Degree Requirements:

Course Title Units
ENGL 120 College Composition and Reading 3
ENGL 122 Introduction to Literature 3
ENGL 124 Advanced Composition: Critical Reasoning and Writing 3
ENGL 126 Creative Writing 3

Select two of the following:
ENGL 221 British Literature I 3
ENGL 222 British Literature II 3
ENGL 231 American Literature I 3
ENGL 232 American Literature II 3
ENGL 270 World Literature I 3
ENGL 271 World Literature II 3

Select one of the following:
ENGL 201 Images of Women in Literature 3
ENGL 202 Introduction to Film as Literature 3
ENGL 214 Masterpieces of Drama 3
ENGL 217 Fantasy and Science Fiction 3
ENGL 236 Chicano/Chicana Literature 3
ENGL 238 Black Literature 3

Select one of the following:
ANTH 120 Cultural Anthropology 3
HIST 100 Early World History 3
HIST 101 Modern World History 3
HIST 105 Early Western Civilization 3
HIST 106 Modern Western Civilization 3
HUM 115 Arts and Culture in San Diego 3
HUM 120 European Humanities 3
HUM 140 Humanities of the Americas 3
HUM 155 World Mythology Through the Humanities 3
PHIL 115 History of Philosophy I: Ancient 3
PHIL 117 History of Philosophy II: Modern and Contemporary 3
RELG 170 Introduction to the New Testament 3

Total Required 24
Plus General Education Requirements

Recommended Electives: Students planning to transfer to four-year institutions to complete a bachelor’s degree in English are STRONGLY urged to take the following courses, depending on the requirements at those schools: Two sequential semesters of a single foreign language (10 units).

Certificate of Achievement
Students who complete only the major requirements above qualify for a Certificate in English. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.
II. SPANISH

This degree program is designed to provide students with communicative skills in understanding, speaking, reading, and writing Spanish. It also gives students a greater understanding of Spanish culture and civilization, and prepares them for greater international and domestic career opportunities. For the suggested sequence of courses to be taken and/or assistance in transferring to a four-year institution, contact the Counseling Center or the Department of World Languages.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

• Utilize more complex vocabulary and grammatical structures to communicate and discuss hypothetical situations dealing with nature, city, life, health, and well-being, professions and occupations, the arts, current events, and politics.
• Utilize more complex vocabulary and grammatical structures to write about situations dealing with nature, city life, health and well-being, professions, and occupations, the arts, current events, and politics.
• Use language and vocabulary skills developed in class to read, analyze, and interpret authentic texts.

CAREER OPPORTUNITIES

Bilingual Aide
Border Patrol Officer
Buyer
Court Interpreter
Counseling
Customs Agent/Inspector
Foreign Exchange Clerk
* Foreign Student Advisor
Interpreter
* Journalist
* Museum Curator
* Physician
* Scientific Linguist
Tour Guide
Tutor
* Bachelor Degree or higher required

Associate in Arts Degree Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>SPAN 120 Spanish I</td>
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<td>SPAN 121 Spanish II</td>
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<td>SPAN 220 Spanish III</td>
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<tr>
<td>SPAN 221 Spanish IV</td>
<td>5</td>
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<tr>
<td>SPAN 250 Conversational Spanish I</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 251 Conversational Spanish II</td>
<td>3</td>
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Select one of the following:

<table>
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<tr>
<td>HIST 118 U.S. History: Chicano/Chicana Perspectives I</td>
<td>3</td>
</tr>
<tr>
<td>HIST 119 U.S. History: Chicano/Chicana Perspectives II</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 141 Spanish and Latin American Cultures</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 145 Hispanic Civilizations</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Required 29

Plus General Education Requirements

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Spanish. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

UNIVERSITY STUDIES: COMMUNICATION AND LANGUAGE ARTS

The Associate Degree in University Studies with an Area of Emphasis is intended to accommodate the differing requirements of a wide variety of transfer institutions and major options. Because admission and major preparation requirements vary at each four-year transfer institution, courses used to complete this degree should be selected with the assistance of a counselor. The completion of the University Studies Degree does not guarantee acceptance into either a baccalaureate major or a four-year institution.

REQUIREMENTS:

I. California State University (CSU)
   General Education Breadth

1. Complete CSU General Education Breadth (see Degree Requirements and Transfer Information section).
2. Earn a grade of "C" or better in 30 of the required 39 semester units of general education to include all courses in Area A and the Mathematical/Quantitative Reasoning courses in Area B.
3. Credit earned through external examinations, i.e., AP, will be applied towards general education in accordance with Cuyamaca College policies. Please note: This may be different than how the external exam is used on a CSU certification.
4. Complete a minimum of 18 units in an Area of Emphasis (listed below).
5. Complete a minimum of 60 degree applicable CSU transferable semester units.
6. Earn a cumulative GPA of 2.0 in all college course work completed.
7. Meet Cuyamaca College residence requirements for graduation (see Admission Information).

OR

II. Intersegmental General Education Transfer Curriculum (IGETC) for CSU or UC

1. Complete IGETC Certification (see Degree Requirements and Transfer Information section).
2. Earn a grade of "C" or better in all IGETC courses.
3. Credit earned through external examinations, i.e., AP, will be applied in accordance with Cuyamaca College policies. Please note: This may be different than how the external exam is used on an IGETC certification.
4. Complete a minimum of 18 units in an Area of Emphasis (listed below).
5. Complete a minimum of 60 degree applicable UC transferable semester units for UC University Studies.
6. Earn a cumulative GPA of 2.0 in all college course work completed.
7. Meet Cuyamaca College residence requirements for graduation (see Admission Information).

AND

III. Area of Emphasis

A. Business and Economics
B. Communication and Language Arts
C. Humanities and Fine Arts
D. Science and Mathematics
E. Social and Behavioral Sciences

While 18 units are required in a specific area to meet the requirements of the degree, it is strongly recommended that as many lower division preparation for the major courses as possible be completed at the community college prior to transfer. Some baccalaureate majors and four-year institutions require a higher GPA than is necessary for the associate degree. Courses that are not UC-transferable will not be used in the UC University Studies Area of Emphasis Degrees. Completion of the University Studies degree does not guarantee admission to a four-year institution.

Courses for the Associate in Arts in University Studies with an Emphasis in Communication and Language Arts focus on the study of how language works to express human ideas and feelings. Students will explore and analyze written and verbal communication methods, as well as develop and advance their oral and written communication skills. Students completing this area may be interested in the following baccalaureate majors: communication, English, foreign language, literature, journalism, and linguistics. Students must complete a minimum of six units in Communication and six units in Language Arts. The remaining six units may be taken from either category.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

• Demonstrate the ability to write effectively.
• Demonstrate the ability to locate relevant, reliable information and read it effectively.
• Organize thoughts and ideas in both oral and written format.
• Communicate effectively with diverse audiences.

Communication
BUS 128*
COMM 110, 120, 122, 123, 124, 130, 137, 145

Language Arts
ARAM 120, 121, 220
ABRC 120, 121, 122, 123, 220, 221, 254
ASL 120, 121, 220, 221
BUS 128*
CHIN 120, 121, 220, 221, 250, 251
ENGL 122, 124, 126, 201, 202, 214, 221, 222, 231, 232, 270, 271
FREN 120, 121, 220, 221, 250, 251
ITAL 120, 121, 220
NAKY 120, 121
SPAN 120, 121, 220, 221, 250, 251

* Course not UC transferable
I. BIOLOGY FOR TRANSFER (AS-T)
The Associate in Science in Biology for Transfer presents the diverse, dynamic study of life through a required core of biology and supporting courses. This degree is specifically designed to prepare students for transfer to a California State University, where a baccalaureate degree may be earned in Biological Sciences or a closely related field.
The following is required for the AS-T in Biology for Transfer degree:
1. 60 semester or 90 quarter CSU-transferable units;
2. The Intersegmental General Education Transfer Curriculum (IGETC) for Science, Technology, Engineering and Mathematics (STEM) pattern for the CSU,*
3. Minimum of 18 semester or 27 quarter units in the major or area of emphasis;
4. Minimum grade point average (GPA) of 2.0;
5. Grade of “C” or better in all courses required for the major or area of emphasis.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Explain the basic structures and fundamental processes of life at the molecular, cellular, and organismal levels.
• Identify the evolutionary processes that lead to adaptation and biological diversity.
• Describe the relationship between life forms and their environment and ecosystems.
• Collect, organize, analyze, interpret and present quantitative and qualitative data and incorporate them into the broader context of biological knowledge.
• Effectively apply current technology and scientific methodologies for problem solving.
• Find, select and evaluate various types of scientific information including primary research articles, mass media sources and World Wide Web information.
• Communicate effectively in written and oral formats.

Associate in Science for Transfer Degree Requirements:
Course Title Units
List A: CHEM 141 General Chemistry I 5
CHEM 142 General Chemistry II 5
MATH 180 Analytic Geometry and Calculus I 5
Choose one sequence:
PHYC 130 Fundamentals of Physics 4
PHYC 131 Fundamentals of Physics 4
or
PHYC 190 Mechanics and Heat 5
PHYC 200 Electricity and Magnetism 5

List B: MATH 160 Elementary Statistics 4
Total Required 36-38
Double-Counted Units 10
General Education Requirements (IGETC-CSU for STEM)* 31
Electives 1-3
Total Degree Units 60

*Completion of IGETC-CSU for STEM allows for completion of 6 units of non-STEM GE work after transfer. One Area 3 course (Fine Arts and Humanities) and one Area 4 course (Social and Behavioral Sciences) may be deferred until after transfer.

II. BIOLOGICAL SCIENCES
This degree program is designed to provide a two-year transfer program with emphasis on the uniformity and diversity of life. The curriculum fulfills the lower division requirements for majors in biology, dentistry, medicine, nursing, pharmacy, environmental health, microbiology and ecology.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Explain the basic structures and fundamental processes of life at the molecular, cellular, and organismal levels.
• Identify the evolutionary processes that lead to adaptation and biological diversity.
• Describe the relationship between life forms and their environment and ecosystems.
• Collect, organize, analyze, interpret and present quantitative and qualitative data and incorporate them into the broader context of biological knowledge.
• Effectively apply current technology and scientific methodologies for problem solving.
• Find, select and evaluate various types of scientific information including primary research articles, mass media sources and World Wide Web information.
• Communicate effectively in written and oral formats.

CAREER OPPORTUNITIES
* Aquatic Biologist
* Athletic Trainer
* Biologist
* Biochemical Engineer
* Biomedical Equipment Technician
* Biotechnologist
* Botanist
* Clinical Lab Technician
* Cytologist
* Ecologist
* Environmental Engineer
* Environmental Technician
* Environmental Microbiologist
* Genetic Engineering Technician
* Greenhouse Assistant
* Laboratory Technician
* Physical Therapist
* Public Health Biologist

The chemistry curriculum is designed to provide students who choose to work toward a bachelor’s degree a well-balanced, lower division program with a strong emphasis on fundamentals and problem solving. This major fulfills the lower division requirements (except for analytical chemistry) for chemistry majors and is typical of the requirements at four-year colleges and universities.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Comprehend and describe the nature of matter, including its classification, composition and structure.
• Demonstrate an understanding of the transformations of matter, both physical and chemical.
• Develop critical thinking skills by predicting interactions between different types of matter, both physical and chemical; analyzing matter in the laboratory both qualitatively and quantitatively and effectively communicating experimental results and conclusions; performing mathematical calculations related to the transformation and analysis of matter; and solving qualitative and quantitative problems in connection with the transformation and analysis of matter.

CAREER OPPORTUNITIES
Chemists work in a variety of fields, primarily those of the chemical, biotechnological, environmental, biomedical, pharmaceutical, electronics, forensic, agricultural and food industries. They usually work in analysis, research, development or production of materials. Management, marketing and teaching opportunities are also available.
* Agricultural Chemist
* Air Quality Control
* Analytical Chemist
* Biochemist
* Chemistry Teacher
* Dietician
* Environmental Chemist
* Environmental Engineer
* Environmental Technician
* Food and Drug Inspector
* Forensic Scientist
* Laboratory Technician

Associate in Science Degree Requirements:
Course Title Units
BIO 215 Statistics for Life Sciences 3
BIO 230 Principles of Cellular, Molecular and Evolutionary Biology 4
BIO 240 Principles of Ecology, Evolution and Organismal Biology 5
CHEM 141 General Chemistry I 5
CHEM 142 General Chemistry II 5
CHEM 231 Organic Chemistry I 5
MATH 180 Analytic Geometry and Calculus I 5
PHYC 130 Fundamentals of Physics 4
PHYC 131 Fundamentals of Physics 4
Total Required 40
Plus General Education Requirements

STEM
BIOLOGICAL SCIENCES
Associate Degree for Transfer™
Associate Degree Programs and Certificates

**ENGINEERING**

This degree program is designed to cover the first two years of a four-year program leading to the bachelor’s degree in engineering at most all-four-year colleges and universities. While the bachelor’s degree is usually the minimum needed to practice as an engineer, the associate degree will permit an individual to find work in most engineering firms as an engineering aide.

### CAREER OPPORTUNITIES

- Aerospace Engineer
- Agricultural Engineer
- Architectural Engineer
- Biomedical Engineer
- CAD/CAM Engineer
- Chemical Engineer
- Civil Engineer
- Civil Engineering Technician
- Computer Engineer
- Electrical Engineer
- Engineering Technician
- Environmental Engineer
- Geological Engineer
- Industrial Engineer
- Industrial Engineering Technician
- Manufacturing Engineer
- Marine Engineer
- Materials Engineer
- Mechanical Engineer
- Mechanical Engineering Technician
- Mining Engineer
- Nuclear Engineer
- Petroleum Engineer
- Structural Engineer
- Systems Engineer
- Robotics Engineer

### Associate in Science Degree Requirements:

**Course Title** | **Units**
--- | ---
CHEM 141 General Chemistry I | 5
CHEM 142 General Chemistry II | 5
CHEM 231 Organic Chemistry I | 5
MATH 180 Analytic Geometry and Calculus I | 5
MATH 280 Analytic Geometry and Calculus II | 4
MATH 281 Multivariable Calculus | 4
PHYC 190 Mechanics and Heat | 5
PHYC 200 Electricity and Magnetism | 5
PHYC 210 Wave Motion and Modern Physics | 5

Total Required: 43

Plus General Education Requirements

### I. CIVIL ENGINEERING

**Program Learning Outcomes**

Upon successful completion of this program, students will be able to:

- Visualize 3D objects and draw them in 2D, both by sketching and through the use of computer-aided drafting software; produce a complete set of drawings sufficient to manufacture a part, including dimensions and tolerances.
- Solve engineering problems through computer modeling, employing an engineering computer language such as Matlab.
- Design a rigid structure such as a bridge, determining forces in each part of the structure. Determine the weight and location of the center of gravity of the structure.
- Design a dynamic system such as a piston or linkage, and compute forces, accelerations, and speeds of all components of the system.
- Apply the tools of surveying, including total station instruments, to analyze the topography of land, construction staking, and setting property boundaries.
- Model vibrating systems using systems of 2nd order differential equations.
- Analyze experimental data to determine summary statistics (e.g., mean, variance), apply appropriate statistical tests to data sets, and design statistical experiments.

<table>
<thead>
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<tbody>
<tr>
<td>CHEM 141 General Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>ENGR 100 Introduction to Engineering and Design</td>
<td>4</td>
</tr>
<tr>
<td>ENGR 119 Basic Engineering CAD</td>
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<td>CAD 120 Introduction to Computer-Aided Drafting and Design</td>
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<tr>
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<tr>
<td>ENGR 200 Engineering Mechanics–Statics</td>
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<tr>
<td>BGRSUR26 Plane Surveying</td>
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<tr>
<td>ENGR 220 Engineering Mechanics–Dynamics</td>
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<td>PHYC 190 Mechanics and Heat</td>
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<tr>
<td>PHYC 200 Electricity and Magnetism</td>
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</tbody>
</table>

Total Required: 58

Plus General Education Requirements

### II. ELECTRICAL AND COMPUTER ENGINEERING

**Program Learning Outcomes**

Upon successful completion of this program, students will be able to:

- Visualize 3D objects and sketch them accurately in 2D.
- Solve engineering problems through computer modeling, employing a computer language such as C or Java.
- Design and write computer programs that employ linked list memory management, stacks, tree data structures, and searching and sorting algorithms.
- Determine the DC and steady-state AC voltages and currents everywhere in an electric circuit composed of passive components.
- Model linear systems of arbitrary size and complexity using linear algebra.
- Model transient and steady-state electrical systems using systems of 2nd order differential equations.
- Apply Green’s theorem, Stokes’ theorem, and Maxwell’s equations to solve simple problems in electrostatics and electromagnetism.
- Analyze and design combinational and sequential digital logic systems of arbitrary complexity, including (for example) Moore and Mealy sequential machines.

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<td>5</td>
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</tbody>
</table>

Total Required: 58

Plus General Education Requirements

### III. MECHANICAL AND AEROSPACE ENGINEERING

**Program Learning Outcomes**

Upon successful completion of this program, students will be able to:

- Visualize 3D objects and draw them in 2D, both by sketching and through the use of computer-aided drafting software; produce a complete set of drawings sufficient to manufacture a part, including dimensions and tolerances.
- Solve engineering problems through computer modeling, employing an engineering computer language such as Matlab.
- Design a rigid structure such as a bridge, determining forces in each part of the structure. Determine the weight and location of the structure’s center of gravity.
- Design a dynamic system such as a piston or linkage and compute forces, accelerations, and speeds of all components of the system.
- Select an appropriate material for manufacturing a part or product and determine the appropriate material processing techniques to produce the part. Justify the choice of material on the basis of macroscopic mechanical properties as well as microstructure.
- Determine the DC and steady-state AC voltages and currents everywhere in an electric circuit composed of passive components.
- Model vibrating systems using systems of 2nd order differential equations.

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<td>CADD 120 Introduction to Computer-Aided Drafting and Design</td>
<td>4</td>
</tr>
<tr>
<td>ENGR 100 Introduction to Engineering and Design</td>
<td>4</td>
</tr>
<tr>
<td>ENGR 119 Basic Engineering CAD</td>
<td>3</td>
</tr>
<tr>
<td>CAD 120 Introduction to Computer-Aided Drafting and Design</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 120 Engineering Computer Applications</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 200 Engineering Mechanics–Statics</td>
<td>3</td>
</tr>
<tr>
<td>BGRSUR26 Plane Surveying</td>
<td>4</td>
</tr>
<tr>
<td>ENGR 220 Engineering Mechanics–Dynamics</td>
<td>4</td>
</tr>
<tr>
<td>ENGR 260 Engineering Materials</td>
<td>3</td>
</tr>
<tr>
<td>MATH 160 Elementary Statistics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 180 Analytic Geometry and Calculus I</td>
<td>5</td>
</tr>
<tr>
<td>MATH 280 Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 281 Multivariable Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 285 Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>PHYC 190 Mechanics and Heat</td>
<td>5</td>
</tr>
<tr>
<td>PHYC 200 Electricity and Magnetism</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Required: 58

Plus General Education Requirements
Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Apply mathematical reasoning and problem solving strategies to analyze, interpret, and model applications from degree and transfer-level courses and programs in math, science, engineering, business, and technology.
• Select and apply appropriate definitions, postulates, and theorems to prove mathematical statements.

Associate in Science Degree Requirements:

I. MATHEMATICS FOR TRANSFER (AS-T)
This program is designed to prepare students for transfer to a California State University (CSU) with the intent of earning a B.S. degree in Mathematics. Since jobs requiring mathematical skills such as data analysis, problem solving, pattern recognition, statistics, and probability are in high demand, the mathematics major may benefit both educationally and economically from developing and pursuing an interest in mathematics. Mathematical skills and statistical methods are employed regularly by researchers testing hypotheses, by workers applying quality control in manufacturing, and by informed citizens who must evaluate information from the media in tabular, graphical, and report form in order to reach solutions. This major offers a foundation in these necessary skills. The emphasis is to prepare students for transfer to a four-year institution and/or for career preparation in a vocational or professional field.

The following is required for the AS-T in Mathematics for Transfer degree:
- 1. Minimum of 60 semester or 90 quarter CSU-transferable units.
- 2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
- 3. Minimum of 18 semester or 27 quarter units in the major.
- 4. A grade of “C” or better in all courses required for the major.
- 5. Certified completion of the California State University General Education (CSU GE) Breadth pattern OR the Intersegmental General Education Transfer Curriculum (IGETC) pattern; see Degree Requirements and Transfer Information section for more information. Note: If following IGETC, IGETC-CSU must be followed for admission to a CSU.

II. MATHEMATICS

Mathematics

1. Mathematics Courses

(a) Core Curriculum:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 180 Analytic Geometry and Calculus I</td>
<td>5</td>
</tr>
<tr>
<td>MATH 280 Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 281 Multivariable Calculus</td>
<td>4</td>
</tr>
</tbody>
</table>

(b) List A: Select one of the following:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 284 Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 285 Differential Equations</td>
<td>3</td>
</tr>
</tbody>
</table>

(c) List B: Select one of the following:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 181 Intro to C++ Programing</td>
<td>4</td>
</tr>
<tr>
<td>MATH 160 Elementary Statistics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 245 Discrete Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>PHYC 190 Mechanics and Heat</td>
<td>5</td>
</tr>
</tbody>
</table>

Any course from List A not selected above: 3-5

Total Units for Major: (3-6 units may be double-counted with GE) 19-21
Total Units for CSU GE Breadth or IGETC-CSU 37-39
Total Transferable Elective Units 3-5
Total Units for Degree 60

Please note: SDSU accepts this degree for students transferring into Mathematics (Science Emphasis) B.S.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Use algebraic methods to solve problems.
• Interpret basic mathematical models and draw inferences from them.
• Represent mathematical information symbolically, visually, numerically and verbally.
• Use the scientific method of inquiry and techniques to answer questions about physical and biological processes.
• Analyze basic concepts of physical and biological science to evaluate scientific information and solve scientific problems.

STEM
CAREER OPPORTUNITIES
* Accountant
* Actuary
* Air Traffic Controller
* Auditor
* Bank Officer
* Budget Analyst
* Computer Operator
* Computer Programmer
* Cost Estimator
* Credit and Collection Manager
* Data Processing Manager
* Economist
* Engineer
* Financial Planner
* Insurance Agent/Broker
* Insurance Claim Examiner
* Laboratory Examiner
* Loan Officer
* Market Research Analyst
* Mathematician
* Mathematics Teacher
* Securities Trader
* Semiconductor Technician
* Statistician
* Surveyor
* Systems Analyst
* Bachelor Degree or higher required
* Bachelor Degree normally recommended

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 180 Analytic Geometry and Calculus I</td>
<td>5</td>
</tr>
<tr>
<td>MATH 280 Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 281 Multivariable Calculus</td>
<td>5</td>
</tr>
<tr>
<td>MATH 284 Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

Select one of the following:

- MATH 245 Discrete Math                     | 3     |
- MATH 285 Differential Equations            | 3     |

Select one of the following:

- ENGR 120 Engineering Computer Applications| 3     |
- MATH 160 Elementary Statistics             | 4     |
- PHYC 190 Mechanics and Heat                 | 5     |
- PHYC 200 Electricity and Magnetism         | 5     |
- PHYC 210 Wave Motion and Modern Physics    | 5     |

Total Required: 22-24

Plus General Education Requirements

Recommended Electives: Students planning to transfer to four-year institutions to complete a bachelor's degree in Pure Mathematics, Applied Mathematics, or Statistics should select an emphasis in an applied discipline such as accounting, chemistry, computer science, economics, engineering, or physics. In particular, transfer students are strongly urged to elect the following physics courses: PHYC 190, 200, 210. Students preparing for a vocational or professional career are strongly encouraged to select an emphasis in a vocational/professional discipline such as business, computer and information science, CADD technology, electronics technology, or environmental health and safety management.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Mathematics. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

I. PHYSICS FOR TRANSFER (AS-T)

Physics is the study of the relationship between matter and energy in the universe. The AS-T in Physics for Transfer degree is designed to prepare students to transfer to a California State University (CSU) with the intent of earning a baccalaureate degree in physics. The curriculum is designed to provide students working toward a bachelor's degree a well-balanced, lower division program by emphasizing fundamental concepts and problem solving. The degree requirements are typical of what baccalaureate institutions require.

The following is required for the AS-T in Physics for Transfer degree:

1. Minimum of 60 semester or 90 quarter CSU-transferable units.
2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
3. Minimum of 18 semester or 27 quarter units in the major.
4. A grade of "C" or better in all courses required for the major.
5. Certified completion of the Intersegmental General Education Transfer Curriculum (IGETC-CSU); see Degree Requirements and Transfer Information section for more information.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Evaluate derivatives of algebraic, trigonometric, logarithmic and exponential functions.
- Evaluate integrals using appropriate techniques (such as: by parts, trig substitution, etc.)
- Apply Green's, Stokes' and Gauss' Theorems.
- Use conservation of energy and conservation of momentum concepts.
- Use Maxwell's Equations to solve problems in electricity and magnetism.
- Use the basic concepts of modern physics: special relativity, photon behavior, matter waves, the uncertainty principle, quantum mechanics in one and three dimensions, statistical physics and nuclear physics.

II. PHYSICS

Physics is the study of the relationship between matter and energy in the universe. The curriculum is designed to provide students working toward a bachelor's degree a well-balanced, lower division program by emphasizing fundamental concepts and problem solving. The degree requirements are typical of what four-year colleges and universities require; see www.assist.org for requirements of specific transfer institution.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Predict periodic trends in ionization energy, atomic size, electron affinity and acid-base properties.
- Calculate changes in enthalpy, entropy, and free energy for chemical reactions, phase changes, solution processes, and elementary molecular processes using tables of thermodynamic data.
- Write systematic names for carbon based compounds.
- Evaluate derivatives of algebraic, trigonometric, logarithmic and exponential functions.
- Evaluate integrals using appropriate techniques (such as: by parts, trig substitution, etc.)
- Apply Green's, Stokes' and Gauss' Theorems.
- Use conservation of energy and conservation of momentum concepts.
- Use Maxwell's Equations to solve problems in electricity and magnetism.
- Use the basic concepts of modern physics: special relativity, photon behavior, matter waves, the uncertainty principle, quantum mechanics in one and three dimensions, statistical physics and nuclear physics.

CAREER OPPORTUNITIES

Air Pollution Operating Specialist
* Astronomer
* Astrophysicist
* Biomedical Engineer
* Biophysicalist
* Chemical Physicist
* Consumer Safety Officer
* Cryogenic Engineer
* Electrician
* Food and Drug Inspector
* Fusion Engineer
* Geophysicist
* Government Claims Representative
* Health Program Representative
* High Energy Physicist
* Laser Specialist
* Metallurgist
* Meteorologist
* Nuclear Physicist
* Physical Oceanographer
* Physicist
* Plasma Physicist
* Quality Control Technician
* Quantum Physicist
* Seismologist
* Statistician
* Systems Analyst
* Bank Officer
* Auditor
* Astronomer
* Astrophysicist
* Biomedical Engineer
* Biophysicalist
* Chemical Physicist
* Chemical Engineer
* CRYOGENIC ENGINEER
* Cryogenic Engineer
* Electrician
* Food and Drug Inspector
* Fusion Engineer
* Geophysicist
* Government Claims Representative
* Health Program Representative
* High Energy Physicist
* Laser Specialist
* Metallurgist
* Meteorologist
* Nuclear Physicist
* Physical Oceanographer
* Physicist
* Plasma Physicist
* Quality Control Technician
* Quantum Physicist
* Seismologist
* Statistician
* Systems Analyst

Credit and Collection Manager
* Bachelor Degree or higher required

Associate in Degree Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 180 Analytic Geometry and Calculus I</td>
<td>5</td>
</tr>
<tr>
<td>MATH 280 Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 281 Multivariable Calculus</td>
<td>5</td>
</tr>
<tr>
<td>PHYC 190 Mechanics and Heat</td>
<td>5</td>
</tr>
<tr>
<td>PHYC 200 Electricity and Magnetism</td>
<td>5</td>
</tr>
<tr>
<td>PHYC 210 Wave Motion and Modern Physics</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Units for Degree: 60

Please note: SDSU accepts this degree for students transferring into the B.S. Physics (General) or B.S. Physics (Modern Optics Emphasis).

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>MATH 180 Analytic Geometry and Calculus I</td>
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</tr>
<tr>
<td>MATH 281 Multivariable Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHVC 190 Mechanics and Heat</td>
<td>5</td>
</tr>
<tr>
<td>PHVC 200 Electricity and Magnetism</td>
<td>5</td>
</tr>
<tr>
<td>PHVC 210 Wave Motion and Modern Physics</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Units for Degree: 60

Please note: SDSU accepts this degree for students transferring into the B.S. Physics (General) or B.S. Physics (Modern Optics Emphasis).
II. Intersegmental General Education Transfer Curriculum (IGETC) for CSU or UC

1. Complete IGETC Certification (see Degree Requirements and Transfer Information section).
2. Earn a grade of “C” or better in all IGETC courses.
3. Credit earned through external examinations, i.e., AP, will be applied in accordance with Cuyamaca College policies. Please note: This may be different than how the external exam is used on an IGETC certification.
4. Complete a minimum of 18 units in an Area of Emphasis (listed below).
5. Complete a minimum of 60 degree applicable UC transferable semester units for UC University Studies.
6. Earn a cumulative GPA of 2.0 in all college course work completed.
7. Meet Cuyamaca College residence requirements for graduation (see Admission Information).

AND

III. Area of Emphasis
A. Business and Economics
B. Communication and Language Arts
C. Humanities and Fine Arts
D. Science and Mathematics
E. Social and Behavioral Sciences

While 18 units are required in a specific area to meet the requirements of the degree, it is strongly recommended that as many lower division preparation for the major courses as possible be completed at the community college prior to transfer. Some baccalaureate majors and four-year institutions require a higher GPA than is necessary for the associate degree. Courses that are not UC-transferable will not be used in the UC University Studies Area of Emphasis Degrees. Completion of the University Studies degree does not guarantee admission to a four-year institution.

OR

Courses for the Associate in Science in University Studies with an Emphasis in Science and Mathematics focus on the study of mathematical and quantitative reasoning skills and the application of facts and principles that form the foundations of living and non-living systems. Students will recognize and utilize the methodologies of science as investigative tools, as well as the limitations of science. Students will use mathematical skills to solve numerical problems encountered in daily life, as well as more advanced skills for applications in the physical and life sciences. Students completing this area may be interested in the following baccalaureate majors: astronomy, biological sciences, chemistry, computer science, engineering, geography, geology, mathematics, oceanography, physical science, and physics. Students must complete a minimum of six units in Science and six units in Mathematics (limitation of one statistics course). The remaining six units may be taken from either category.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

• Use arithmetical, algebraic, geometric and statistical methods to solve problems.
• Interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.
• Represent mathematical information symbolically, visually, numerically and verbally.
• Use the scientific method of inquiry and techniques to answer questions about physical and biological processes.
• Analyze basic concepts of physical and biological science to evaluate scientific information and solve scientific problems.

Science

ANTH 130
ASTR 110, 112
BIO 115, 122, 130, 131, 133, 134, 135, 140, 141, 141L, 152*, 230, 240, 251
CHEM 102, 115, 116, 120, 141, 142, 231, 232
CS 119, 119L, 181, 182, 281, 282
GEOG 120, 121
GEOG 104, 110, 111
OCEA 112, 113
PHCY 110, 130, 131, 190, 200, 210

Mathematics

BIO 215
MATH 160, 170*, 175, 176, 178, 180, 245, 280, 281, 284, 285

* Course not UC transferable
VISUAL & PERFORMING ARTS

ART

I. ART HISTORY FOR TRANSFER (AA-T)
The Associate in Arts in Art History for Transfer degree is designed to provide students with an understanding and an appreciation of the arts in a variety of cultures and civilizations throughout history. This degree prepares students to transfer to a California State University where a baccalaureate degree may be earned in art, art history, or a related field.

The following is required for the Associate in Arts in Art History for Transfer degree:

1. Minimum of 60 semester or 90 quarter CSU-transferable units.
2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
3. Minimum of 18 semester or 27 quarter units in the major.
4. A grade of "C" or better in all courses required for the major.
5. Certified completion of the California State University General Education (CSU GE) Breadth pattern OR the Intersegmental General Education Transfer Curriculum (IGETC) pattern; see Degree Requirements and Transfer Information section for more information. Note: If following IGETC, IGETC-CSU must be followed for admission to a CSU.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Analyze and derive meaning from works of art according to the historical and cultural contexts of artwork, and assess the role of the visual arts in culture as a vehicle of human expression.
• Apply artistic processes and skills using a variety of media to communicate meaning and intent in original works of art.
• Analyze the role and development of the visual arts in past and present cultures throughout the world, noting human diversity as it relates to the visual arts and the artists.
• Analyze and derive meaning from works of art, including their own, according to the elements of art, the principles of design, and aesthetic qualities.
• Apply what they have learned in the visual arts across subject areas by developing competencies and critical skills in problem solving, communication, management of time, and identifying resources that contribute to lifelong learning, career skills, and careers related to the visual arts.

Associate in Arts Degree Requirements:

Core Curriculum:
Course Title Units
ART 124 Drawing I 3
ART 140 Survey of Western Art I: Prehistory through Middle Ages 3
ART 141 Survey of Western Art II: Renaissance through Modern 3

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Use the vocabulary of the visual arts to express their observations as they perceive and respond to works of art, objects in nature, events, and the environment.
• Apply artistic processes and skills using a variety of media to communicate meaning and intent in original works of art.
• Analyze the role and development of the visual arts in past and present cultures throughout the world, noting human diversity as it relates to the visual arts and the artists.
• Apply what they have learned in the visual arts across subject areas by developing competencies and critical skills in problem solving, communication, management of time, and identifying resources that contribute to lifelong learning, career skills, and careers related to the visual arts.

II. STUDIO ARTS FOR TRANSFER (AA-T)
The AA-T in Studio Arts is designed to prepare students to transfer to a California State University (CSU) with the intent of earning a B.A. degree in an area such as Fine Arts or Studio Arts. Students who earn this degree will have the techniques necessary to create a variety of two- and three-dimensional art projects while demonstrating an increased aesthetic awareness. They will have the ability to use visual media to generate ideas, solve visual problems, enhance perception, think and respond critically to visual information in their lives, identify and describe the historical and cultural contexts of artwork, and assess the role of the visual arts in culture as a vehicle of human expression.

II. STUDIO ARTS FOR TRANSFER (AA-T)
The AA-T in Studio Arts is designed to prepare students to transfer to a California State University (CSU) with the intent of earning a B.A. degree in an area such as Fine Arts or Studio Arts. Students who earn this degree will have the techniques necessary to create a variety of two- and three-dimensional art projects while demonstrating an increased aesthetic awareness. They will have the ability to use visual media to generate ideas, solve visual problems, enhance perception, think and respond critically to visual information in their lives, identify and describe the historical and cultural contexts of artwork, and assess the role of the visual arts in culture as a vehicle of human expression.

The following is required for the AA-T in Studio Arts for Transfer degree:

1. Minimum of 60 semester or 90 quarter CSU-transferable units.
2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
3. Minimum of 18 semester or 27 quarter units in the major.
4. A grade of “C” or better in all courses required for the major.
5. Certified completion of the California State University General Education (CSU GE) Breadth pattern OR the Intersegmental General Education Transfer Curriculum (IGETC) pattern; see Degree Requirements and Transfer Information section for more information. Note: If following IGETC, IGETC-CSU must be followed for admission to a CSU.

List A: Select one:
ART 146 Asian Art 3

List B: Select one:
ART 120 Two-Dimensional Design 3
ART 121 Painting I 3
ART 129 Three-Dimensional Design 3
ART 135 Watercolor I 3
ART 230 Figure Drawing I 3

List C: Select one:
Any List B course not already used 3
ART 143 Modern Art 3
ART 144 Architecture of the 20th Century 3
ART 145 Contemporary Art History: 1945-Present 3
HUM 110 Principles of the Humanities 3
HUM 115 Arts and Culture in Local Context-San Diego 3
HUM 116 Kumeyaay Arts and Culture 3

Total Units for Major (6 units may be double-counted with GE) 18
Total Units for CSU GE or IGETC-CSU 37-39
Total Transferable Elective Units 9-14
Total Units for Degree 60

List A: Select one:
ART 140 Survey of Western Art I: Prehistory through Middle Ages 3
ART 143 Modern Art 3
ART 144 Architecture of the 20th Century 3
ART 145 Contemporary Art 3
ART 146 Asian Art 3

List B: Select three of the following:
ART 121 Painting I 3
ART 125 Drawing II 3
ART 135 Watercolor I 3
ART 148 Applied Design and Crafts 3
ART 230 Figure Drawing I 3

Total Units for Major (6 units may be double-counted with GE) 24
Total Units for CSU GE Breadth or IGETC-CSU 37-39
Total Transferable Elective Units 3-5
Total Units for Degree 60

Please note: SDSU accepts this degree for students transferring into Art (Studio Arts emphasis).
III. ART AND DESIGN

This degree program emphasizes aesthetics, design, and craft using manual and digital mediums. Students will develop their ability to think spatially in two and three dimensions and to use creative problem-solving techniques using images and letter forms. Students will develop a professional portfolio for placement at a four-year university. Designed for students interested in pursuing a bachelor’s degree in Graphic Design, please consult the catalog of the transfer institution for specific requirements. Students interested in pursuing the entry level, two-year associate degree or certificate in graphic design should refer to the Graphic Design program.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Use the vocabulary of the visual arts to express their observations as they perceive and respond to works of art, objects in nature, events, and the environment;
- Apply artistic processes and skills, using a variety of media to communicate meaning and intent in original works of art;
- Analyze, assess, and derive meaning from works of art, including their own, according to the elements of art, the principles of design, and aesthetic qualities;
- Apply what they learn in the visual arts across subject areas; develop competencies and creative skills in problem solving, communication, and management of time and resources that contribute to lifelong learning and career skills; and identify careers in and related to the visual arts.

CAREER OPPORTUNITIES

* Advertising Director
  * Advertising
* Art Director
  * Desktop Publishing
  * Display Designer
  * Graphic Designer
  * Illustrator
* Marketing Director
  * Multimedia
  * Package Designer
  * Web Page Designer
* Bachelor Degree or higher required

Associate in Arts Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 120</td>
<td>Two-Dimensional Design</td>
<td>3</td>
</tr>
<tr>
<td>ART 124</td>
<td>Drawing I</td>
<td>3</td>
</tr>
<tr>
<td>ART 129</td>
<td>Three-Dimensional Design</td>
<td>3</td>
</tr>
<tr>
<td>ART 140</td>
<td>Survey of Western Art I: Prehistory through Middle Ages</td>
<td>3</td>
</tr>
<tr>
<td>ART 141</td>
<td>Survey of Western Art II: Renaissance through Modern</td>
<td>3</td>
</tr>
<tr>
<td>ART 149</td>
<td>History of Graphic Design</td>
<td>3</td>
</tr>
<tr>
<td>ART 177</td>
<td>Digital Drawing and Painting</td>
<td>3</td>
</tr>
<tr>
<td>ART 230</td>
<td>Figure Drawing I</td>
<td>3</td>
</tr>
<tr>
<td>ART 241</td>
<td>Illustration I</td>
<td>3</td>
</tr>
<tr>
<td>GD 105</td>
<td>Fundamentals of Digital Media</td>
<td>3</td>
</tr>
<tr>
<td>GD 110</td>
<td>Graphic Design Principles</td>
<td>3</td>
</tr>
<tr>
<td>GD 125</td>
<td>Typography</td>
<td>3</td>
</tr>
<tr>
<td>GD 126</td>
<td>Adobe Photoshop Digital Imaging</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following:

- ART 121 Painting I 3
- ART 242 Illustration II 3
- GD 130 Professional Business Practices 3
- GD 210 Professional Digital Photography I 3
- GD 217 WEB Graphics 3
- GD 222 WEB Animation 3
- GD 225 Digital Illustration 3

Total Required 42

Plus General Education Requirements

Recommended Electives: ART 135, BUS 110, GD 230

IV. ART—DRAWING AND PAINTING

This degree program is designed to provide a fundamental background in two-dimensional studio arts, emphasizing both technique and aesthetic awareness. The curriculum consists of courses in both studio techniques and art history. Students will develop their ability to control line, value, shape, color, perspective and composition in various mediums. The major provides preparation for transfer to a four-year college in fine art or a vocational area related to art.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Use the vocabulary of the visual arts to express their observations as they perceive and respond to works of art, objects in nature, events and the environment.
- Apply artistic processes and skills, using a variety of media to communicate meaning and intent in original works of art.
- Analyze, assess, and derive meaning from works of art, including their own, according to the elements of art, the principles of design, and aesthetic qualities.
- Apply what they learned in the visual arts across subject areas; develop competencies and creative skills in problem solving, communication, and management of time and resources that contribute to lifelong learning and career skills, and identify careers in and related to the visual arts.
VISUAL & PERFORMING ARTS

GRAPHIC DESIGN

Students in this degree program develop entry level skills in design aesthetics, typography, illustration, digital imaging, page layout, web design and professional business practices. The course work provides training with state of the art computer hardware and software used in the graphic design profession. Students develop a professional portfolio for job interviews. Designed for a two-year degree or certificate only. Students interested in pursuing a bachelor's degree should refer to the Art-Graphic Design degree, please consult the catalog of the transfer institution for specific requirements.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:
• Clarify design objectives and then apply design principles, communication skills, and production techniques to develop effective designs using industry standard software.

CAREER OPPORTUNITIES
* Advertising Director
* Art Director
* Cartoonist
* Desktop Publisher
* Display Designer
* Graphic Designer
* Illustrator
* Marketing Director
* Multimedia Designer
* Package Designer
* Technical Illustrator
* Web Designer

* Bachelor Degree or higher required

Course Equivalencies:
The following Cuyamaca and Grossmont College courses are considered similar enough to be treated as equivalent. Modification of Major forms are not required.

Cuyamaca Course
Grossmont Course
GD 105 ........................................ ART 171

Associate in Science Degree Requirements:
Course Title Units
ART 124 Drawing I 3
CIS 211 Web Development I 3
GD 105 Fundamentals of Digital Media 3
GD 110 Graphic Design Principles 3
GD 125 Typography 3
GD 126 Adobe Photoshop Digital Imaging 3
GD 129 Page Layout 3
GD 130 Professional Business Practices 3
GD 225 Digital Illustration 3

Select three of the following:
ART 230 Figure Drawing I 3
GD 210 Professional Digital Photography I 3
GD 211 Professional Digital Photography II 3
GD 212 Professional Digital Photography III 3
GD 217 Web Graphics 3
GD 222 Web Animation 3
GD 223 Advanced Web Animation 3
GD 230 Graphic Design Work Experience .5

Total Required 27

Plus General Education Requirements

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Graphic Design. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

CERTIFICATES OF SPECIALIZATION:

These certificates offer specific training either for entry-level positions or to augment related programs such as Web Development or Graphic Design. They are designed to demonstrate a relatively narrow expertise or skill area that may be used to attain a graphic design "niche" job.

Students who complete the requirements below qualify for a certificate in that area of emphasis. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

I. DIGITAL PHOTOGRAPHY

Program Learning Outcomes

Upon successful completion of this certificate, students will be able to:
• Clarify design objectives and then apply design principles and production techniques to develop effective photographic images using industry standard equipment and software.

Certificate Requirements:
Course Title Units
GD 126 Adobe Photoshop Digital Imaging 3
GD 130 Professional Business Practices 3
GD 210 Professional Digital Photography I 3
GD 211 Professional Digital Photography II 3
GD 212 Professional Digital Photography III 3

Total Required 15

II. WEB GRAPHICS

Program Learning Outcomes

Upon successful completion of this certificate, students will be able to:
• Clarify design objectives and then apply design principles, communication skills, and production techniques to develop effective web designs using industry standard software.

Certificate Requirements:
Course Title Units
CIS 211 Web Development I 3
GD 110 Graphic Design Principles 3
GD 210 Professional Digital Photography I 3
GD 217 Web Graphics 3
GD 222 Web Animation 3

Total Required 15

MUSIC

I. MUSIC FOR TRANSFER (AA-T)

The AA-T in Music for Transfer is designed to prepare students to transfer to a California State University (CSU) with the intent of earning a B.A. in Music. Students who earn this degree will have the fundamental knowledge and skills necessary to succeed in a music degree at the baccalaureate level. The curriculum combines music theory, applied studies, and performance at the lower division level.

The following is required for the AA-T in Music for Transfer degree:
1. Minimum of 60 semester or 90 quarter CSU-transferable units.
2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
3. Minimum of 18 semester or 27 quarter units in the major.
4. A grade of “C” or better in all courses required for the major.
5. Certified completion of the Intersegmental General Education Transfer Curriculum (IGETC-CSU); see Degree Requirements and Transfer Information section for more information.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:
• Analyze a musical score to determine its key, harmonic structure, musical style, and form.
• Identify musical elements in performances and relate them to their cultural and historical contexts.
• Use either the voice or a musical instrument to perform an intermediate level work with reliable technique and appropriate stylistic interpretation.
• Perform musical works in a large vocal or instrumental ensemble.
• Demonstrate proficiency on either a musical instrument or with the voice.

Associate in Arts Degree Requirements:
Course Title Units
MUS 105 Music Theory and Practice I 4
MUS 106 Music Theory and Practice II 4
MUS 205 Music Theory and Practice III 4
MUS 206 Music Theory and Practice IV 4
MUS 190 Performance Studies .5
MUS 191 Performance Studies .5
MUS 290 Performance Studies .5
MUS 291 Performance Studies .5

Choose four units from the following large ensemble courses:
MUS 152 Concert Band 1
MUS 153 Concert Band 1
MUS 252 Concert Band 1
MUS 253 Concert Band 1
MUS 158 Chorus 1
MUS 159 Chorus 1
MUS 258 Chorus 1
MUS 259 Chorus 1

Total Units for Major 22
Total Units for IGETC-CSU 37
Total Transferable Elective Units 1
Total Units for Degree 60

Please note: SDSU accepts this degree for students transferring into Music B.A.
II. MUSIC EDUCATION
This degree program offers lower division preparation for students who want to pursue a bachelor's degree in music education and a California teaching credential in music. The primary emphasis is to prepare students for transfer to four-year music education programs.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
- Analyze a musical score to determine its key, harmonic structure, musical style, and form.
- Use the piano keyboard to demonstrate musical concepts and play intermediate level compositions.
- Use a digital audio workstation to record and edit digital audio files and notate musical ideas.
- Identify musical elements in performances and relate them to their cultural and historical contexts.
- Describe the typical duties of a secondary school music teacher.
- Use either the voice or a musical instrument to perform an intermediate level work with reliable technique and appropriate stylistic interpretation.
- Perform musical works in a large vocal or instrumental ensemble.

CAREER OPPORTUNITIES
- * Arranger
- * Choral Director
- * Composer
- * Conductor
- Copyist
- * Critic
- Instrumentalist
- * Music Instructor/Professor
- * Music Librarian
- * Music Therapist
- Music Typographer
- Performer, Vocalist
- Radio Programmer
- Recording Company Representative
- * Teacher
- * Bachelor Degree or higher required

Associate in Arts Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>MUS 105</td>
<td>Music Theory and Practice I</td>
<td>4</td>
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<tr>
<td>MUS 106</td>
<td>Music Theory and Practice II</td>
<td>4</td>
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<tr>
<td>MUS 110</td>
<td>Great Music Listening</td>
<td>3</td>
</tr>
<tr>
<td>MUS 116</td>
<td>Introduction to World Music</td>
<td>3</td>
</tr>
<tr>
<td>MUS 119</td>
<td>Cooperative Work Experience in Music Education</td>
<td>1</td>
</tr>
<tr>
<td>MUS 120</td>
<td>Introduction to Music Technology</td>
<td>3</td>
</tr>
<tr>
<td>MUS 126</td>
<td>Class Guitar I</td>
<td>2</td>
</tr>
<tr>
<td>MUS 132</td>
<td>Class Piano I</td>
<td>3</td>
</tr>
<tr>
<td>MUS 133</td>
<td>Class Piano II</td>
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</tr>
<tr>
<td>MUS 170</td>
<td>Class Voice</td>
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<td>MUS 190</td>
<td>Performance Studies</td>
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<tr>
<td>MUS 191</td>
<td>Performance Studies</td>
<td>.5</td>
</tr>
<tr>
<td>MUS 222</td>
<td>Class Piano III</td>
<td>3</td>
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<td>MUS 233</td>
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<td>MUS 290</td>
<td>Performance Studies</td>
<td>.5</td>
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<tr>
<td>MUS 291</td>
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<td>.5</td>
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</tbody>
</table>

Select four of the following:
- MUS 108 Rock, Pop and Soul Ensemble
- MUS 109 Rock, Pop and Soul Ensemble
- MUS 152 Concert Band
- MUS 153 Concert Band
- MUS 158 Chorus
- MUS 159 Chorus
- MUS 208 Rock, Pop and Soul Ensemble
- MUS 209 Rock, Pop and Soul Ensemble
- MUS 252 Concert Band
- MUS 253 Concert Band
- MUS 258 Chorus
- MUS 259 Chorus

Total Required 40
Plus General Education Requirements

III. MUSIC INDUSTRY STUDIES
This degree program provides lower division preparation for students wishing to transfer to a four-year program in Music Industry Studies. The curriculum combines training in music theory, literature and performance with studies in music technology and business. Transfer students should select the CSU GE Breadth or the IGETC transfer pattern (see Degree Requirements and Transfer Information section).

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
- Analyze a musical score to determine its key, harmonic structure, musical style, and form.
- Use the piano keyboard to demonstrate musical concepts and play beginning level compositions.
- Use a digital audio workstation to record and edit digital audio files and notate musical ideas.
- Identify musical elements in performances and relate them to their cultural and historical contexts.
- Describe the structure, components, and various career paths of the music industry.
- Demonstrate proficiency on either a musical instrument or with the voice.

CAREER OPPORTUNITIES
- * Advertising Jingle Writer
- * Arranger
- * Artist and Repertoire Manager
- * Artist Representative
- * Artist Administrator
- * Attorney specializing in Performing Arts
- * Composer
- * Concert Producer
- Copyist
- Instrumentalist
- * Musical Instrument Manufacturer
- Representative
- * Music Publisher
- * Music Retail Manager
- * Professional Songwriter
- Publicist
- Radio Programmer
- * Record Company representative
- * Record Producer
- * Recording Studio Engineer
- * Teacher
- Video Game Composer
- Vocalist

* Bachelor Degree or higher required
Certificate of Achievement
The Certificate of Achievement in California State University General Education Breadth (CSU GE) may be awarded upon completion of the CSU GE Breadth requirements (see Degree Requirements and Transfer Information section). Students must complete a minimum of 39 units, which are distributed among five areas. CSU GE Breadth requirements are designed to be taken with a major area of concentration and elective courses in preparation for transfer to the California State University.

Courses completed at California community colleges and participating institutions will be certified based on approval at the original campus. Courses taken at other colleges and universities; i.e., out-of-state, private, may be used in the certification under certain conditions. Although this certificate recognizes the completion of lower division general education requirements for the CSU, it does not guarantee admission to a four-year institution. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
- Exhibit proficiency in written communication in English.
- Exhibit proficiency in oral communication in English.
- Analyze, criticize and advocate ideas and reach well-supported conclusions.
- Show skills and understanding beyond the level of intermediate algebra, and apply mathematical concepts to solve problems.
- Analyze and appreciate works of philosophical, historical, literary, aesthetic and cultural importance.
- Reveal an historical understanding of major civilizations and cultures, both Western and non-Western.
- Recognize the contributions to knowledge, civilization, and society that have been made by various ethnic or cultural groups.
- Evaluate the basic concepts of physical and biological sciences.
- Use the scientific method of inquiry and techniques to answer questions about physical and biological processes.
- Cultivate a lifelong understanding and development as an integrated physiological, social, and psychological being.

Certificate of Achievement
The Certificate of Achievement in Intersegmental General Education Transfer Curriculum (IGETC) may be awarded upon completion of the IGETC requirements (see Degree Requirements and Transfer Information section). Students must complete a minimum of 39 units, which are distributed among six areas. IGETC requirements are designed to be taken with a major area of concentration and elective courses in preparation for transfer to the California State University or the University of California.

Courses completed at California Community Colleges and participating institutions will be certified based on approval at the original campus. Courses taken at other colleges and universities; i.e. out-of-state, private, may be used in the certification under certain conditions. Although this certificate recognizes the completion of lower division general education requirements for IGETC, it does not guarantee admission to a four-year institution. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
- Exhibit proficiency in written communication in English.
- Exhibit proficiency in oral communication in English (IGETC-CSU).
- Analyze, criticize and advocate ideas and reach well-supported conclusions.
- Show skills and understanding beyond the level of intermediate algebra, and apply mathematical concepts to solve problems.
- Analyze and appreciate works of philosophical, historical, literary, aesthetic and cultural importance.
- Reveal an historical understanding of major civilizations and cultures, both Western and non-Western.
- Recognize the contributions to knowledge, civilization, and society that have been made by various ethnic or cultural groups.
- Evaluate the basic concepts of physical and biological sciences.
- Use the scientific method of inquiry and techniques to answer questions about physical and biological processes.
- Demonstrate proficiency in a language other than English equal to two years of high school study (IGETC-UC).