

Associate Degree Programs and Certificates

Academic & Career Pathways



BEHAVIORAL & SOCIAL SCIENCES

Anthropology
Child Development
Education
Political Science
Psychology
Social Work
Sociology



LANGUAGE & COMMUNICATION

American Sign Language
Arabic Studies
Communication
English
Spanish



HEALTH SCIENCE

Biology Pre-Allied Health
Kinesiology
Public Health



BUSINESS

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



STEM

Biological Science
Chemistry
Engineering
Mathematics
Physics



HUMANITIES

History
Kumeyaay Studies
Philosophy



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).

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◆ ASSOCIATE DEGREE FOR TRANSFER
 ◆ ASSOCIATE DEGREE

◆ CERTIFICATE OF ACHIEVEMENT
 * CERTIFICATE OF SPECIALIZATION

BEHAVIORAL & SOCIAL SCIENCES



Associate Degree for TransferSM

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:

- 60 semester or 90 quarter CSU-transferable units;
- The Intersegmental General Education Transfer Curriculum (IGETC) or the California State University General Education-Breadth Requirements;
- Minimum of 18 semester or 27 quarter units in the major or area of emphasis;
- Minimum grade point average (GPA) of 2.0;
- 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:		
ANTH 120	Cultural Anthropology	3
ANTH 130	Introduction to Physical Anthropology	3
ANTH 140	Introduction to Archaeology	3
List A: (Select 1 course)		
MATH 160	Elementary Statistics	4
PSY 215	Statistics for the Behavioral Sciences	4
List B: (Select 1-2 courses; 3-5 units)		
BIO 140	Human Anatomy	5
PSY 205	Research Methods in Psychology	3
GEOL 110	Planet Earth	3
and		
GEOL 111	Planet Earth Laboratory (<i>must be taken if GEOL 110 is selected</i>)	1

GEOL 104	Earth Science	3
and		
GEOG 121	Physical Geography: Earth Systems Laboratory (<i>must be taken if GEOL 104 is selected</i>)	1

List C: (Select 1 course)

MUS 116	Introduction to World Music	3
RELG 120	World Religions	3
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

CHILD DEVELOPMENT



Associate Degree for TransferSM

I. CHILD AND ADOLESCENT DEVELOPMENT FOR TRANSFER (AA-T)

The Associate in Arts in Child and Adolescent Development for Transfer is designed to provide students with the lower division coursework needed to transfer to a California State University for a bachelor's degree in Child Development or Child and Adolescent Development or a closely related field.

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, emotion and social development.

Associate in Arts for Transfer Degree Requirements:

Course	Title	Units
Required Core:		
CD 125	Child Growth and Development	3
PSY 120	Introductory Psychology	3
MATH 160	Elementary Statistics	4
List A: (Choose 9 units)		
CD 131	Child, Family and Community	3
BIO 130	General Biology I	3
CD 130	Curriculum: Design and Implementation	3
CD 213	Observation and Assessment	3
Total Required		19
Double-Counted Units		12-18
General Education Requirements (CSU GE or IGETC-CSU)		37-39
Electives		14-20
Total Degree Units		60



Associate Degree for TransferSM

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:

- Minimum of 60 semester or 90 quarter CSU-transferable units.
- Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
- Minimum of 18 semester or 27 quarter units in the major.
- A grade of "C" OR better in all courses required for the major.
- 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 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.

Associate in Science Degree Requirements:

Course	Title	Units
CD 123	Principles and Practices of Programs and Curriculum for Young Children 3	
CD 125	Child Growth and Development	3
CD 130	Curriculum: Design and Implementation	3
CD 131	Child, Family and Community	3
CD 134	Health, Safety and Nutrition of Young Children	3
CD 153	Teaching in a Diverse Society	3
CD 212	Practicum in Early Childhood Education	3
CD 213	Observation and Assessment	3
Total Units for Major (6 units may be double-counted with GE)		24
Total Units for CSU GE or IGETC-CSU		37-39
Total Transferable Elective Units		3-5
Total Units for Degree		60

III. CHILD DEVELOPMENT

The Child Development curriculum 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
- * Camping Guide
- * Child Care Specialist
- * Child Psychologist
- * Curriculum Development
- * Development Specialist (Child, Adolescent and Family)
- * Early Intervention Aide
- * Educational Consultant
- * Infant/Toddler Teacher
- * Outdoor Education Specialist
- * Preschool Director
- * Preschool Teacher
- * 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:

Core Curriculum:

Course	Title	Units
CD 106	Practicum: Beginning Observation and Experience	1
CD 123	Principles and Practices of Programs and Curriculum for Young Children 3	
CD 125	Child Growth and Development	3
CD 126	Art for Child Development	3
CD 127	Science and Mathematics for Child Development	3
CD 128	Music and Movement for Child Development	3
CD 129	Language and Literature for Child Development	3
CD 131	Child, Family and Community	3
CD 134	Health, Safety and Nutrition of Young Children	3
CD 141	Working with Children with Special Needs	3
or		
CD 210	Working with Young Children with Challenging Behaviors	3
CD 153	Teaching in a Diverse Society	3
		31

Areas of Emphasis:

A. INFANTS AND TODDLERS

CD 124	Infant and Toddler Development	3
CD 132	Observation and Assessment: Field Experience Seminar	3
CD 143	Responsive Planning for Infant/Toddler Care	3
CD 170	Practicum: Field Experience with Infants and Toddlers	2
		11
Total Required Including Core Courses		42
Plus General Education Requirements		

B. PRESCHOOL CHILDREN

CD 130	Curriculum: Design and Implementation	3
CD 132	Observation and Assessment: Field Experience Seminar	3
CD 133	Practicum-Field Experience: Student Teaching	2
		8
Total Required Including Core Courses		39
Plus General Education Requirements		

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

Course	Title	Units
CD 125	Child Growth and Development	3
CD 131	Child, Family and Community	3
		6

Select one of the following:

CD 126	Art for Child Development	3
CD 127	Science and Mathematics for Child Development	3
CD 128	Music and Movement for Child Development	3
CD 129	Language and Literature for Child Development	3
		3
		3

Select one of the following:

CD 124	Infant and Toddler Development	3
CD 136	Adult Supervision	3
CD 143	Responsive Planning for Infant/Toddler Care	3
		3
		3

Select one of the following:

CD 137	Administration of Child Development Programs I	3
CD 138	Administration of Child Development Programs II	3
		<u>3</u>
	Total Required	15

EARLY CHILDHOOD INTERVENTION

This certificate prepares students for entry-level positions and greater opportunities for advancement in the early childhood field. It is designed to demonstrate an area of expertise in working with young children with special needs in typical early childhood programs or those specifically designed for young children with special needs.

Program Learning Outcomes

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

- Observe and document specific behaviors, skills, and interests of young children.
- Plan and implement schedule, curriculum, and guidance strategies adapted for a young child with special needs.

Career Opportunities

Students may find employment as an inclusion specialist, inclusion aide, or intervention assistant in a wide variety of programs serving young children with special needs. These programs include but are not limited to corporate child care, Head Start, State Preschools, special day classes, intervention programs, home visit programs, community-based programs such as park, recreation and camping programs, and faith-based early childhood programs.

Certificate Requirements

Course	Title	Units
CD 125*	Child Growth and Development	3
CD 134	Health, Safety and Nutrition of Young Children	3
CD 141	Working with Children with Special Needs	3
		<u>9</u>

Select two of the following:

CD 126*	Art for Child Development	3
CD 127*	Science and Mathematics for Child Development	3
CD 128*	Music and Movement for Child Development	3
CD 129*	Language and Literature for Child Development	3
CD 131*	Child, Family and Community	3
CD 145	Child Abuse and Family Violence in Our Society	3
CD 210	Working with Children with Challenging Behaviors	3
	Total Required	<u>15</u>

*Meets the educational components of the Department of Social Services license regulations for child care programs.

At least 50% of the units required for the Certificate of Specialization must be completed at Cuyamaca College.

ELEMENTARY EDUCATION**Associate Degree for TransferSM****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 Transfer 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 arithmetical, 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:**

Course	Title	Units
BIO 130	General Biology I	3
BIO 131	General Biology I Laboratory	1
CD 125	Child Growth and Development	3
CHEM 115	Fundamentals of Chemistry	4
COMM 122	Public Speaking	3
ED 200	Teaching as a Profession	3
ENGL 120	College Composition and Reading	3
ENGL 122	Introduction to Literature	3
GEOG 106	World Regional Geography	3
GEOG 121	Physical Geography: Earth Systems Laboratory	1
GEOL 104	Earth Science	3
HIST 100	Early World History	3
HIST 108	Early American History	3
MATH 125	Structure and Concepts of Elementary Mathematics I	3
PHYC 110	Introductory Physics	4
POSC 121	Introduction to U.S. Government and Politics	3
		<u>36</u>

List A

ENGL 124	Advanced Composition: Critical Reasoning and Writing	3
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List B: Select one:

ART 100	Art Appreciation	3
MUS 110	Great Music Listening	3
THTR 110	Introduction to the Theatre	3
		<u>3</u>

List C: Select eight units:

Any course in List B not selected		3
ARBC 121	Arabic II	5
ART 140	Survey of Western Art I: Prehistory through Middle Ages	3
ART 141	Survey of Western Art II: Renaissance through Modern	3
ASL 121	American Sign Language II	4
COMM 120	Interpersonal Communication	3
ES 253	Physical Education in Elementary Schools	3
FREN 121	French II	5
HED 105	Health Education for Teachers	1
ITAL 121	Italian II	5
MATH 126	Structure and Concepts of Elementary Mathematics II	3
MUS 118	Introduction to Music	4
PHIL 125	Critical Thinking	3
PHIL 130	Logic	3
PHIL 140	Problems in Ethics	3
RELG 120	World Religions	3
RELG 130	Scriptures of World Religions	3
SPAN 121	Spanish II	5
		<u>8</u>
Total Units for Major		60
Total Units for CSU GE or IGETC-CSU General Education Requirements (all met)		37-39
Total Transferable Elective Units		0
Total Units for Degree		60

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

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
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COMPOSITION, ORAL COMMUNICATION, AND LITERATURE

1. Composition (minimum six units)

ENGL 120 College Composition and Reading 3
and one of the following:

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

GEOG 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

and

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 60-66

Recommended Elective:

PSC 100† 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:

- 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
ARBC 145
BIO 134
CD 145
ECON 110, 120, 121
GEOG 106, 122, 130
HIST 100, 101, 105, 106, 108, 109, 118, 119, 122, 123, 124, 130, 131, 132, 180, 181, 275, 276, 277
POSC 120, 121, 124, 130, 140, 170
SOC 114, 120, 125, 130, 140
SPAN 145

Behavioral Science

CD 115, 125, 131
COMM 110, 124
HED 120, 201, 203, 204, 251
NUTR 158
PSY 120, 125, 134, 138, 140, 150, 170, 201, 211, 220



Associate Degree
for TransferSM

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.

- Participate knowledgeably as a U.S. citizen in civic-oriented environments.
- Demonstrate an understanding of U.S. and world politics.
- Comprehend enduring political thoughts and ideas throughout history.

Associate in Arts Degree Requirements:**Core Curriculum:**

Course	Title	Units
POSC 121	Introduction to U.S. Government and Politics	3

List A: Select three of the following:

POSC 120	Introduction to Politics and Political Analysis	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
		9-10

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
		6-7

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

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



Associate Degree
for TransferSM

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:

- 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:**

Course	Title	Units
PSY 120	Introductory Psychology	3
PSY 205	Research Methods in Psychology	3
PSY 215	Statistics for the Behavioral Sciences	4
		10

List A: Select one of the following:

BIO 130	General Biology I	3
PSY 140	Physiological Psychology	3
		3

List B: Select two of the following:

PSY 138	Social Psychology	3
PSY 150	Development Psychology	3
PSY 220	Learning	3
Any course not selected above		3
		6

Total Units for Major (12-15 units may be double-counted with GE) 19

Total Units for CSU GE Breadth or IGETC-CSU 37-39
Total Transferable Elective Units 16-17
Total Units for Degree 60

Please note: SDSU accepts this degree for students transferring into Psychology (Applied).

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:

- Apply critical thinking to the research, effects and planning in the field and practice of social work.
- Investigate social worker duties in dealing with a wide variety of difficult social situations including discrimination, oppression, maltreatment, poverty and injustice.
- Analyze various situations and determine the proper role of a social worker and the various factors influencing the situation.

CAREER OPPORTUNITIES

* Administration

* Child Welfare

Clinical:

*Counseling, Therapy

- Community Organizations:
 *Advocacy, Politics, Education
 *Criminal Justice/Corrections
 *Developmental Disabilities
 *Gerontology
 *Health Care
 Occupational:
 *Counseling
 *Organizational Development
 *Teaching
 *Wellness Promotion
 *Human Resources
 Public Welfare:
 *Social Work
 *Research
 *Bachelor degree or higher recommended

Associate in Arts Degree Requirements:

Course	Title	Units
BIO 130	General Biology I	3
ECON 120	Principles of Macroeconomics	3
or		
ECON 121	Principles of Microeconomics	3
HED 201	Introduction to Public Health	3
MATH 160	Elementary Statistics	4
or		
PSY 215	Statistics for the Behavioral Sciences	4
or		
BIO 215	Statistics for Life Sciences	3
PSY 120	Introductory Psychology	3
SOC 120	Introductory Sociology	3
SW 110	Social Work Fields of Service	3
SW 120	Introduction to Social Work	3
Total Required		24-25
Plus General Education Requirements		



Associate Degree
for TransferSM

SOCIOLOGY FOR TRANSFER (AA-T)

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:

- Minimum of 60 semester or 90 quarter CSU-transferable units.
- Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
- Minimum of 18 semester or 27 quarter units in the major.
- A grade of "C" or better in all courses required for the major.
- 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:**

Course	Title	Units
MATH 160	Elementary Statistics	4
PSY 138	Social Psychology	3
SOC 120	Introductory Sociology	3
SOC 125	Marriage, Family and Alternative Lifestyles	3
SOC 130	Contemporary Social Problems	3
		16

List A: Select one of the following:

ANTH 120	Cultural Anthropology	3
PSY 120	Introductory Psychology	3
		3
Total Units for Major		19
Total Units for CSU GE Breadth or IGETC-CSU		37-39
Total Transferable Elective Units		3
Total Units for Degree		60

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

UNIVERSITY STUDIES: SOCIAL AND BEHAVIORAL SCIENCES

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**

- Complete CSU General Education Breadth (see Degree Requirements and Transfer Information section).
- 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.
- 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.

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

OR

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

- Complete IGETC Certification (see Degree Requirements and Transfer Information section).
- Earn a grade of "C" or better in all IGETC courses.
- 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.
- Complete a minimum of 18 units in an Area of Emphasis (listed below).
- Complete a minimum of 60 degree applicable UC transferable semester units for UC University Studies.
- Earn a cumulative GPA of 2.0 in all college course work completed.
- Meet Cuyamaca College residence requirements for graduation (see Admission Information).

AND

III. Area of Emphasis

- Business and Economics
- Communication and Language Arts
- Humanities and Fine Arts
- Science and Mathematics
- 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*

SPAN 145

Behavioral Science

CD 115, 125, 131, 145
 COMM 110, 124
 HED 120, 201, 203, 204, 251*
 NUTR 158
 PSY 120, 125, 134, 138, 140, 150, 170, 201*,
 211*, 220

*Course not UC-transferable

BUSINESS

ACCOUNTING

This degree program is designed to prepare students to enter the workforce as accounting technicians or tax technicians. The curriculum is supported by related business courses and a strong general education program for students interested in qualifying for responsible positions in accounting. *Designed for a two-year degree or certificate. Students interested in pursuing a bachelor's degree in accounting should consult the catalog of the transfer institution for specific requirements.*

Program Learning Outcomes

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

- Use personal and ethical frameworks to respond to ethical dilemmas.
- Articulate the role of accounting within economic or industry environments through effective communication.
- Demonstrate analytical and information technology skills needed to solve business problems or give recommendations to improve business processes.

CAREER OPPORTUNITIES

- * Auditor
- * Budgeter
- * Bank Examiner
- Bookkeeper
- * Cost Accountant
- * Certified Accountant
- * Controller
- Credit Card Clerk
- Securities Clerk
- * Systems Analyst
- * Tax Specialist/Accountant
- * Treasurer
- * Bachelor Degree or higher required

Associate in Science Degree Requirements:

Course	Title	Units
BUS 120	Financial Accounting	4
BUS 121	Managerial Accounting	4
BUS 122	Intermediate Accounting	4
BUS 124	Auditing	3
BUS 125	Business Law: Legal Environment of Business	3
BUS 128	Business Communication	3
BUS 150	Individual Income Tax Accounting	3
BUS 162	Analysis of Financial Statements	3
BUS 176	Computerized Accounting Applications	2
CIS 110	Principles of Information Systems	4
	Total Required	33
	Plus General Education Requirements	

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:

- Apply 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:

Course	Title	Units
BOT 123-125	Comprehensive Excel Levels I-III	3
BOT 174	Computer Concepts and Applications	3
BUS 109	Elementary Accounting	3
	or	
BUS 120	Financial Accounting	4
BUS 121	Managerial Accounting	4
BUS 128	Business Communication	3
BUS 129	Payroll Accounting and Business Taxes	2
BUS 176	Computerized Accounting Applications	2
	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.

BUSINESS



Associate Degree
for TransferSM

I. BUSINESS ADMINISTRATION FOR TRANSFER (AS-T)

This program is designed to provide students with the common core of lower division courses required to transfer and pursue a baccalaureate degree in Business Administration. This includes business degrees with options such as accounting, finance, human resources management, international business, management, operations management, and marketing. This major aligns with the California State University (CSU) Bachelor of Science in Business Administration.

The following is required for the AS-T in Business Administration 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:

- 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 actions.

Associate in Science Degree Requirements:**Core Curriculum:**

Course	Title	Units
BUS 120	Financial Accounting	4
BUS 121	Managerial Accounting	4
BUS 125	Business Law: Legal Environment of Business	3
ECON 120	Principles of Macroeconomics	3
ECON 121	Principles of Microeconomics	3
		<u>17</u>

List A: Select one of the following:

MATH 160*	Elementary Statistics	4
MATH 178*	Calculus for Business, Social and Behavioral Sciences	4
		<u>4</u>

List B: Select two of the following

BUS 128*	Business Communication	3
CIS 110	Principles of Information Systems	4
Any course from List A not selected above*		4
		<u>7-8</u>

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	1
Total Units for Degree	60

*Students planning to transfer to SDSU are strongly encouraged to complete Math 160, Math 178, and BUS 128.

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

- * Advertising/Marketing Manager
- * Agricultural Marketing Specialist
- * Banker
- * Broker
- * Consultant
- * Computer Operations Specialist
- * Credit Investigator
- * Economic Forecaster
- * Financial Analyst
- * Hospital Administrator
- * Import/Export Agent
- * Market Research Analyst
- * Personnel Manager
- * Real Estate Broker/Agent
- * Retail Manager
- * Securities Analyst/Trader

* Bachelor Degree or higher required

Associate in Science Degree Requirements:

Course	Title	Units
BUS 120	Financial Accounting	4
BUS 121	Managerial Accounting	4
BUS 125	Business Law: Legal Environment of Business	3
BUS 128	Business Communication	3
CIS 110	Principles of Information Systems	4
ECON 120	Principles of Macroeconomics	3
ECON 121	Principles of Microeconomics	3
MATH 160	Elementary Statistics	4
MATH 178	Calculus for Business, Social and Behavioral Sciences	4
	Total Required	<u>32</u>
	Plus General Education Requirements	

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:

Course	Title	Units
BUS 109	Elementary Accounting	3
	or	
BUS 120	Financial Accounting	4
BUS 110	Introduction to Business	3
BUS 115	Human Relations in Business	3
BUS 125	Business Law: Legal Environment of Business	3
BUS 128	Business Communication	3
BUS 195	Principles of Money Management for Success	3

BOT 174	Computer Concepts and Applications	3
CIS 110	Principles of Information Systems	4
ECON 120	Principles of Macroeconomics	3
	Total Required	<u>24-26</u>
	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 ENTREPRENEURSHIP**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:**

Course	Title	Units
BUS 112	Craft Entrepreneur	2
BUS 111	Entrepreneurship: Starting and Developing a Business	3
BUS 125	Business Law: Legal Environment of Business	3
BUS 109	Elementary Accounting	<u>3</u>
		11

Select at least four units from the following:

BOT 107	Office Systems and Procedures	2
BOT 114	Essential Word	1
BOT 115	Essential Excel	1
BOT 117	Essential PowerPoint	1
BOT 132	Google Applications for Business	3
BOT 151	Using Microsoft Outlook	<u>4</u>
	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.

CAREER OPPORTUNITIES

Account Clerk
 Administrative Assistant
 Bank Teller
 Billing Clerk
 Bookkeeper
 Brokerage Clerk
 Computer Operator
 Court Clerk
 Customer Service Representative
 Executive Assistant
 Executive Secretary
 File Clerk
 General Office Clerk
 Hotel/Motel Desk Clerk
 Information Clerk
 Insurance Clerk
 Legal Secretary
 Loan/Credit Clerk
 Medical Secretary
 Office Manager
 Personnel Clerk
 Real Estate Clerk
 Secretary
 Word Processing Specialist

Associate in Science Degree Requirements:

Course	Title	Units
BOT 100	Basic Keyboarding	1
BOT 101AB	Keyboarding/ Document Processing I-II	3
BOT 102AB	Intermediate Keyboarding/ Document Processing I-II	3
BOT 107	Office Systems and Procedures	2
BOT 120-122	Comprehensive Word Levels I-III	3
BOT 174	Computer Concepts and Applications	3
BUS 128	Business Communication	3
		<u>18</u>

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
		<u>6</u>
	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.

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 102AB	Intermediate Keyboarding/ Document Processing I-II	3
BOT 104	Filing and Records Management	1
BOT 106	Effective Job Search	1
BOT 107	Office Systems and Procedures	2
BOT 114	Essential Word	1
or		
BOT 120-122	Comprehensive Word Levels I-III	3
BOT 115	Essential Excel	1
or		
BOT 123-125	Comprehensive Excel Levels I-III	3
BOT 116	Essential Access	1
or		
BOT 126-128	Comprehensive Access Levels I-III	3
BOT 117	Essential PowerPoint	1
or		
BOT 129-130	Comprehensive PowerPoint Levels I-II	2
BOT 118	Integrated Office Projects	1
BOT 223-225	Office Work Experience	1-3
BUS 128	Business Communication	3
		<u>16-25</u>

Select at least five units from the following:

BOT 103ABC	Building Keyboarding Skill I, II, III	.5
BOT 132	Google Applications for Business	3
BOT 133	Adobe Acrobat for the Workplace	1
BOT 150	Using Microsoft Publisher	1
BOT 151	Using Microsoft Outlook	1
BUS 109	Elementary Accounting	3
BUS 120	Financial Accounting	4
		<u>5</u>
	Total Required	21-30
	Plus General Education Requirements	

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Administrative Assistant. 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 123-125	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
		<u>19-21</u>

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
		<u>3-4</u>

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
		<u>3</u>
	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 and spreadsheet programs, such as Word and Excel, and electronic communications such as email.

- Work effectively, respectfully, ethically and professionally with people of diverse ethnic, cultural, gender and other backgrounds, and with people of different organizational roles, social affiliations, and personalities.
- Communicate effectively and professionally in business situations through physical or virtual presence, writing, speaking, and electronic media.

Certificate Requirements

Course	Title	Units
BOT 100	Basic Keyboarding	1
BOT 114	Essential Word	1
BOT 115	Essential Excel	1
BOT 119	Windows for the Information Worker	2
BOT 151	Using Microsoft Outlook	1
BUS 115	Human Relations in Business	3
BUS 128	Business Communication	3
CIS 110	Principles of Information Systems	4
Total Required		16

Certificate of Achievement

Students who complete the requirements above qualify for a Certificate in Business Information Worker. 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:

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. ACCOUNT CLERK

This certificate prepares a beginning student to work in a job that requires bookkeeping skills as well as an ability to provide account clerk support using accounting software. Many jobs at the entry level are available for someone who has training in these two areas.

Program Learning Outcomes

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

- Explain the basic concepts of using computerized accounting software in the relevant field of business.
- Appropriately use the vocabulary and accounting procedures specific to the workplace.
- Use computer input devices, e.g., keyboard or mouse, to efficiently and competently use accounting software specific to the relevant field of business.

Certificate Requirements:

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

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

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
BOT 104	Filing and Records Management	1
BOT 119	Windows for the Information Worker	2
BOT 132	Google Applications for Business	3
Total Required		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
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
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:

Course	Title	Units
BOT 100	Basic Keyboarding	1
BOT 114	Essential Word	1
or		
BOT 120-121	Comprehensive Word, Levels I-II	2
BOT 115	Essential Excel	1
or		
BOT 123-124	Comprehensive Excel, Levels I-II	2
BOT 116	Essential Access	1
or		
BOT 126-127	Comprehensive Access, Levels I-II	2
BOT 117	Essential PowerPoint	1
or		
BOT 129-130	Comprehensive PowerPoint, Levels I-II	2
Total Required		5-9

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:

Course	Title	Units
BOT 100	Basic Keyboarding	1
BOT 118	Integrated Office Projects	1
BOT 120	Comprehensive Word, Level I	1
or		
BOT 114	Essential Word	1
BOT 121	Comprehensive Word, Level II	1
BOT 122	Comprehensive Word, Level III	1
BOT 123	Comprehensive Excel, Level I	1
or		
BOT 115	Essential Excel	1
BOT 124	Comprehensive Excel, Level II	1
BOT 125	Comprehensive Excel, Level III	1
BOT 126	Comprehensive Access, Level I	1
or		
BOT 116	Essential Access	1
BOT 127	Comprehensive Access, Level II	1
BOT 129	Comprehensive PowerPoint, Level I	1
or		
BOT 117	Essential PowerPoint	1
BOT 130	Comprehensive PowerPoint, Level II	1
Total Required		12



Associate Degree for TransferSM

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 student to transfer to a California State University, where a baccalaureate degree may be earned in Economics or a closely related field.

The following is required for the AA-T in Economics 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 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:

Course	Title	Units
ECON 120	Principles of Macroeconomics	3
ECON 121	Principles of Microeconomics	3
MATH 160	Elementary Statistics	4
MATH 178	Calculus for Business, Social and Behavioral Sciences	4
or		
MATH 180	Analytic Geometry and Calculus I	5
List A: (Select 1 course)		
BUS 120	Financial Accounting	4
BUS 121	Managerial Accounting	4
BUS 128	Business Communication	3
CIS 110	Principles of Information Systems	4

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

Any List A course not used	3-4
Total Required	21-23
Double-Counted Units	9-12
General Education Requirements	37-39
Electives	7-12
Total Degree Units	60

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 actions.
- 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:

Course	Title	Units
BUS 109	Elementary Accounting	3
or		
BUS 120	Financial Accounting	4
BUS 110	Introduction to Business	3
BUS 111	Entrepreneurship: Starting and Developing a Business	3
BUS 125	Business Law: Legal Environment of Business	3
BUS 128	Business Communication	3
Total Required		15-16

Select two of the following:

BUS 112	Craft Entrepreneur	2
BUS 115	Human Relations in Business	3
BUS 156	Principles of Management	3
BUS 176	Computerized Accounting Applications	2
Total Required		4-6

Select at least three units from the following:

BOT 114	Essential Word	1
BOT 115	Essential Excel	1
BOT 116	Essential Access	1
BOT 117	Essential PowerPoint	1
BOT 132	Google Applications for Business	3
BOT 174	Computer Concepts and Applications	3
Total Required		22-25
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:

- 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

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.
- Identify and 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
		22

Select two of the following:

BOT 123-125	Comprehensive Excel Levels I-III	3
BOT 174	Computer Concepts and Applications	3
BUS 176	Computerized Accounting Applications	2
CIS 110	Principles of Information Systems	4
		5-7

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
		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 goals and objectives emphasize three primary areas:

- Legal Research, Analysis and Writing
 - Ethics and the Mechanics of Law
 - Integration of Substantive and Procedural Law
- The successful paralegal degree candidate will possess a broad educational background with 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 Procedures	3
PARA 130	Legal Research and Writing	3
PARA 132	Computer Assisted Legal Research (CALR)	3
PARA 135	Bankruptcy Law	3
		<u>21</u>

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
		<u>6</u>
	Total Required	27
	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

GEOL 104, 110, 111

OCEA 112, 113

PHYC 110, 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

HED 120, 201

HIST 108, 109, 118, 119, 122, 123, 124, 130, 131, 132, 133, 180, 181

POSC 120, 121, 124, 130, 140

PSY 120, 125, 134, 138, 140, 150, 170, 220

SOC 120, 125, 130

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

Broker

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
RE 190	Real Estate Principles	3
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
		<u>15</u>

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
or		
ECON 120	Principles of Macroeconomics	3
or		
ECON 121	Principles of Microeconomics	3
or		
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
		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		

*Non-Bureau of Real Estate Licensing course

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
		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
		6
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. 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 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, 128*

Economics

ECON 110, 120, 121

Electives

CIS 110; MATH 160, 178, 180

* Course not UC transferable

ENVIRONMENTAL & APPLIED TECHNOLOGY

AUTOMOTIVE TECHNOLOGY

The automotive technology curriculum provides for entry level skills in the automotive field. The program is designed to impart in-depth technical skills as required in today's highly technical automotive field. It prepares students for employment in the automotive and/or transportation trades. For those currently employed, upgrading and specialization skills will be stressed. The major emphasizes practical experience in actual repairs under simulated shop conditions. The program offers two introductory courses that are recommended for all students: AUTO 99 Introduction to Automotive Technology is a lecture class that can be taken face-to-face or fully online. AUTO 100 is a laboratory class that demonstrates how to perform basic services. Students must select one of these courses before taking AUTO 120.

Program Learning Outcomes

Upon successful completion of this program, 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.
- Following 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 for assisting in repairing various drivability concerns.
- Utilize communication 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 writing repair order estimates, revising estimates, and final invoicing.
- Independently apply technical training and skill sets learned at school in an actual automotive repair shop environment.

CAREER OPPORTUNITIES

Auto Electrician
Auto Parts Salesperson
Automotive Air Conditioning Technician
Brake and Front-End Technician
Computerized Engine Control Specialist
Engine Machinist
General Repair Technician
High Performance and Racing Specialist
Licensed Smog Technician
Manufacturer Service Engineer
Service Advisor
Service Manager
Technical Instructor
Technical Sales Representative
Transmission Technician
Tune-up Technician

I. AUTOMOTIVE TECHNOLOGY

Associate in Science Degree Requirements

Course	Title	Units
AUTO 120	Engine Performance I - Mechanical and Ignition Systems	5
AUTO 122	Automotive Electrical Systems	5
AUTO 123	Engine Performance II - Fuel Systems Emission Systems	5
AUTO 127	Advanced Automotive Electrical Systems	5
AUTO 130	Automotive Brakes and Brake License	5
AUTO 180	Automotive Service Advisor	1
AUTO 182	Automotive Work Experience	3
		<u>29</u>

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
		<u>7-10</u>

Select one of the following:

AUTO 135	Advanced Brakes	5
AUTO 141*	Emission Control License Fundamentals Level I Inspector Training	3
AUTO 142*	Emission License Procedures Level II Inspector Training	2
AUTO 145	Advanced Four-Wheel Alignment	5
AUTO 155	Advanced Drive Train Systems	4
AUTO 165	Advanced Air Conditioning and Heating Systems	3
AUTO 170	Engine Overhaul	5
AUTO 175	Advanced Engine Overhaul	5
AUTO 176	Engine Machining	5
		<u>2-5</u>
	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.

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

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

- 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:

Course	Title	Units
AUTO 099	Introduction to Automotive Technology	3
	or	
AUTO 100	Introduction to Automotive Technology Lab	1
AUTO 122	Automotive Electrical Systems	5
AUTO 123	Engine Performance II Emissions Systems	5
AUTO 129	Introduction to Hybrid Electric Vehicles	5
AUTO 130	Automotive Brakes and Brake License	5
AUTO 140	Four Wheel Alignment	5
AUTO 141	Emission Control License Fundamentals Level I Inspector Training	3
AUTO 142	Emission License Procedures Level II Inspector Training	2
AUTO 182*	Automotive Work Experience	12
	Total Required	<u>43-45</u>
	Plus General Education Requirements	

*Note: Automotive work experience classes are from 1 to 4 credit units per semester.

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.

Associate in Science Degree Requirements:

Course	Title	Units
AUTO 141	Emission Control License Fundamentals	
	Level I Inspector Training	3
AUTO 142	Emission License Procedures	
	Level II Inspector Training	2
AUTO 200	ASEP–Orientation	1
AUTO 201	ASEP–Electrical	6
AUTO 202	ASEP–Brakes and Alignment	7
AUTO 203	ASEP–Engine Repair	4.5
AUTO 204	ASEP–Power Train	7
AUTO 205	ASEP–Engine Performance and Air Conditioning	7
AUTO 206*	ASEP–Work Experience	15
	Total Required	52.5
	Plus General Education Requirements	

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

IV. AUTOMOTIVE TECHNOLOGY–FORD ASSET

The Ford sponsored Automotive Student Service Education 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:

Course	Title	Units
AUTO 190	ASSET–Orientation, PDI and Lubrication	2
AUTO 191	ASSET–Brakes, Advanced Brakes, Suspension and NVH	7
	or	
AUTO 191ABCD	ASSET–Brakes and ASSET–Brakes, Advanced Brakes, Steering and Suspension, NVH TEST OUT and ASSET–Dynamic Vehicle Brakes and Suspension and Noise Vibration Harshness	4.5
AUTO 192	ASSET–Drive Train	8
	or	
AUTO 192ABCD	ASSET–Automatic Transmission Service and ASSET–Transmission Diagnosis and Service TEST OUT and ASSET–Automatic Transmission Diagnosis and ASSET–Differential & 4WD Diagnosis & Service	5.5
AUTO 193	ASSET–Engine Repair	4.5
	or	
AUTO 193ABC	ASSET–Engine Diagnosis and Repair and ASSET–Engine Diagnosis and Repair TEST OUT and ASSET–Diesel Engine Performance & Diagnosis	4.5
AUTO 195	ASSET–Electronic Engine Controls	7
	or	

AUTO 195ABCD	ASSET–Engine Performance Theory and Operation and ASSET–Engine Performance Diagnosis and Repair Test Out and ASSET–Engine Performance Diagnosis and Testing and Gasoline Turbo Direct Injection	5
AUTO 196	ASSET–Electrical, Accessories and Air Conditioning	5
	or	
AUTO 196ABCD	ASSET–Electrical and ASSET–Electrical, Electronics, Climate Control TEST OUT and ASSET–Electronics and ASSET–Climate Control	5.5
AUTO 197*	ASSET–Work Experience	12
	Total Required	38.5-46
	Plus General Education Requirements	

*Must be taken for a total of 12 units.

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:

Course	Title	Units
AUTO 120	Engine Performance I - Mechanical and Ignition Systems	5
AUTO 122	Automotive Electrical Systems	5
AUTO 123	Engine Performance II - Fuel Systems Emission Systems	5
AUTO 124	Engine Performance III - Drivability	5
AUTO 141	Emission Control License Fundamentals	
	Level I Inspector Training	3
AUTO 142	Emission License Procedures	
	Level II Inspector Training	2
	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 writing repair orders estimates, revising estimates and final invoicing.
- Independently apply technical training and skill sets learned at school in an actual automotive repair shop environment.

Certificate Requirements:

Course	Title	Units
AUTO 130	Automotive Brakes and Brake License	5
AUTO 140	Four-Wheel Alignment	5
AUTO 145	Advanced Four-Wheel Alignment	5
AUTO 180	Automotive Service Advisor	1
AUTO 182	Automotive Work Experience	3
	Total Required	19

Certificate of Achievement

Students who complete the requirements above qualify for a Certificate in Automotive Technology–Brakes and Front-End. An official request must be filed with the Admissions and Records Office prior to 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:

- 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.
- Using prescribed industry standards, correctly utilize test equipment and tools to diagnose and repair automotive electrical systems.
- Retrieve manufacturers repair data and specifications and utilize this information for accurate diagnosis and repair.
- Following prescribed industry guidelines, diagnosis, 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.
- 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 writing repair orders estimates, revising estimates and final invoicing.

- Independently apply technical training and skill sets learned at school in an actual automotive repair shop environment.

Certificate Requirements:

Course	Title	Units
AUTO 120	Engine Performance I - Mechanical and Ignition Systems	5
AUTO 122	Automotive Electrical Systems	5
AUTO 152	Drive Train Systems	4
AUTO 170	Engine Overhaul	5
AUTO 182	Automotive Work Experience	3
	Total Required	22

Certificate of Achievement

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

CADD TECHNOLOGY

Occupational preparation in Computer-Aided Drafting and Design is the primary purpose of the CADD Technology degree program. Students are required to complete two core courses and to select from two potential career paths: Building Design Industry or Manufacturing Industry. Adherence to industrial practices and standards is stressed, including problem solving in a simulated industrial environment.

Program Learning Outcomes

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

- Create 3D modeling objects of various orientations including sections and elevations of objects, and identify the relationships of objects or object features to demonstrate visualization proficiency.
- Identify or describe the typical characteristics and uses of common construction or manufacturing materials, products and systems, document them in drawings, and make appropriate selections based on design project requirements.
- Use the latest version of 2D/3D CADD and Solid Modeling software programs (AutoCAD and SolidWorks) to create industry standard architectural or engineering drawings.
- Model the habits and attitudes for success in professional employment as a CADD technician including the preparation and presentation of a professional portfolio.
- Demonstrate computation, communication, critical thinking, and problem-solving skills to perform effectively as a CADD technician in the field of architecture and/or the civil, electronic, mechanical, structural, and surveying engineering fields.

CAREER OPPORTUNITIES

CAD Technician in the field of Architecture and Civil, Electronic, Mechanical, Structural, and Surveying Engineering

Associate in Science Degree Requirements:**Core Curriculum:**

Course	Title	Units
CADD 115	Engineering Graphics	3
CADD 120	Introduction to Computer-Aided Drafting and Design	3
		6

Areas of Emphasis:**A. BUILDING DESIGN INDUSTRY**

CADD/SURV 127	Survey Drafting Technology	3
CADD 131	Architectural Computer-Aided Drafting and Design	3
CADD 133	Advanced Architectural Computer-Aided Drafting and Design	3
CADD/OH 200	Introduction to Computer-Aided Landscape Design	3
		12

Select two of the following:

CADD 126	Electronic Drafting	3
CADD 128	Geometric Dimensioning and Tolerancing (GDT)	3
CADD 132	Advanced Computer-Aided Drafting and Design in 3D Modeling	3
CADD/OH 201	Advanced Computer-Aided Landscape Design	3
		6

Total Required Including
Core Classes 24
Plus General Education Requirement

B. MANUFACTURING INDUSTRY**Select four of the following:**

CADD/ENGR 125	Intro to 3D Solid Modeling	3
CADD 126	Electronic Drafting	3
CADD 128	Geometric Dimensioning and Tolerancing (GDT)	3
CADD/ENGR 129	Engineering Solid Modeling	3
CADD 132	Advanced Computer-Aided Drafting and Design in 3D Modeling	3
		12

Select two of the following:

CADD/SURV 127	Survey Drafting Technology	3
CADD 131	Architectural Computer-Aided Drafting and Design	3
CADD 133	Advanced Architectural Computer-Aided Drafting and Design	3
CADD/OH 200	Introduction to Computer-Aided Landscape Design	3
		6

Total Required Including
Core Classes 24
Plus General Education Requirements

Certificate of Achievement

Students who complete only the courses required for the major including an area of emphasis qualify for a Certificate in CADD Technology 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.

CERTIFICATE OF SPECIALIZATION**CADD/MANUFACTURING TECHNOLOGY**

This Certificate-program is designed to introduce the various technologies used in manufacturing/advanced manufacturing, including new manufacturing technologies. This program is well-balanced between theoretical and practical aspects of manufacturing/advanced manufacturing.

Program Learning Outcomes

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

- Understand principles of the current technology used in manufacturing.
- Apply the appropriate technology in manufacturing.
- Define the advantages and disadvantages of the application of "AI" in manufacturing.
- Work at an entry level in the metal-work industry.
- Perform their jobs in a safe manner.

Certificate Requirements

Course	Title	Units
CADD 115	Engineering Graphics	3
CADD/ENGR 125	Intro to 3D Solid Modeling (SW)*	3
CADD 140	Introduction to Advanced CADD/ Manufacturing	2
CADD 141	Introduction to Technology of Machine Tools	2
CADD 150	Occupational Work Experience in CADD Technology/Manufacturing	4
	Total Required	14

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

CENTER FOR WATER STUDIES

I. BACKFLOW & CROSS-CONNECTION CONTROL

Students will study the technical processes, procedures, and methods used in the production, use, and distribution of recycled and reclaimed wastewater, including backflow protection, legal, administrative and permitting issues, the treatment process, health and safety concerns, and the cross-connection control (shut down) test as performed in San Diego County. The courses consist of both classroom and demonstration sessions which cover all aspects of cross-connection control and recycled water shut down testing.

Program Learning Outcomes

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

- 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 test reporting forms.
- Evaluate backflow testing device malfunctions.
- 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:

Course	Title	Units
CWS 101	Fundamentals of Water & Wastewater	3
CWS 102	Calculations in Water & Wastewater	3
CWS 130	Water Distribution Systems	3
CWS 204	Applied Hydraulics	3
CWS 280	Backflow Tester Training	2
CWS 282	Cross-Connection Control Specialist	3
CWS 284	Cross-Connection Control Specialist- Recycled Water	3
		20

Select at least nine units from the following:

CWS 103	Water Resources Management	3
CWS 105	Water Conservation	3
CWS 106	Electrical & Instrumentation Processes	3
CWS 110	Laboratory Analysis for Water & Wastewater	3
CWS 115	Wastewater Reclamation and Reuse	3
CWS 132	Wastewater Collection Systems	3
CWS 134	Pumps, Motors, & Valves	3
CWS 290	Cooperative Work Experience	2
		9-11
	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

Students in this major learn the methods, processes, technology, and current practices involved in operating and maintaining modern, complex water distribution systems. Students who satisfactorily complete the required courses for this certificate and/or degree program will qualify to take the CDPH Grade D-1 through D-5 Water Distribution Operator examinations required to obtain certification and employment with a water district.

Program Learning Outcomes

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

- 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 flow, 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:

Course	Title	Units
CWS 100	Career Pathways in Water & Wastewater	3
CWS 101	Fundamentals of Water & Wastewater	3
CWS 102	Calculations in Water & Wastewater	3
CWS 106	Electrical & Instrumentation Processes	3
CWS 107	Safety in Water & Wastewater	3
CWS 110	Laboratory Analysis for Water & Wastewater	3
CWS 130	Water Distribution Systems	3
CWS 134	Pumps, Motors, & Valves	3
CWS 204	Applied Hydraulics	3
CWS 230	Advanced Water Distribution Systems	3
		30

Select at least six units from the following:

CWS 103	Water Resources Management	3
CWS 105	Water Conservation	3
CWS 112	Water Treatment Plant Operations	3
CWS 115	Wastewater Reclamation and Reuse	3
CWS 132	Wastewater Collection Systems	3
CWS 206	Advanced Electrical & Instrumentation Processes	3
CWS 207	Practical Skills in Water & Wastewater Systems	2
CWS 210	Advanced Laboratory Analysis for Water & Wastewater	3
CWS 212	Advanced Water Treatment Plant Operations	3
CWS 232	Advanced Wastewater Collection Systems	3
CWS 270	Public Works Supervision	3
CWS 280	Backflow Tester Training	2
CWS 282	Cross-Connection Control Specialist	3
CWS 284	Cross-Connection Control Specialist-Recycled Water	3
CWS 290	Cooperative Work Experience	2
		6-7
	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 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:

Course	Title	Units
CWS 101	Fundamentals of Water & Wastewater	3
CWS 103	Water Resources Management	3
CWS 105	Water Conservation	3
CWS 115	Wastewater Reclamation and Reuse	3
OH 120	Fundamentals of Ornamental Horticulture	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 221	Landscape Construction: Irrigation and Carpentry	3
OH 250	Landscape Water Management	2
CWS 290	Cooperative Work Experience	2
or		
OH 290	Cooperative Work Experience Education	2
		<u>25</u>

Select two of the following:

CWS 102	Calculations in Water & Wastewater	3
CWS 112	Water Treatment Plant Operations	3
CWS 114	Wastewater Treatment Plant Operations	3
CWS 130	Water Distribution Systems	3
CWS 132	Wastewater Collection Systems	3
CWS 280	Backflow Tester Training	2
CWS 282	Cross-Connection Control Specialist	3
CWS 284	Cross-Connection Control Specialist-Recycled Water	3
		<u>5-6</u>

Select two of the following:

OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 140	Soils	3
OH 174	Turf and Ground Cover Management	3
OH 220	Landscape Construction: Concrete and Masonry	3
OH 235	Principles of Landscape Irrigation	4
OH 238	Irrigation System Design	3
OH 255	Sustainable Urban Landscape Principles and Practices	2
		<u>4-7</u>
Total Required		34-38
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:

Course	Title	Units
CWS 100	Career Pathways in Water & Wastewater	3
CWS 101	Fundamentals of Water & Wastewater	3
CWS 102	Calculations in Water & Wastewater	3
CWS 106	Electrical & Instrumentation Processes	3
CWS 107	Safety in Water & Wastewater	3
CWS 110	Laboratory Analysis for Water & Wastewater	3
CWS 112	Water Treatment Plant Operations	3
CWS 134	Pumps, Motors & Valves	3
CWS 204	Applied Hydraulics	3
CWS 212	Advanced Water Treatment Plant Operations	3
		<u>30</u>

Select at least six units from the following:

CWS 103	Water Resources Management	3
CWS 105	Water Conservation	3
CWS 114	Wastewater Treatment Plant Operations	3
CWS 115	Wastewater Reclamation and Reuse	3
CWS 130	Water Distribution Systems	3
CWS 206	Advanced Electrical & Instrumentation Processes	3
CWS 207	Practical Skills in Water & Wastewater Systems	2
CWS 210	Advanced Laboratory Analysis for Water & Wastewater	3
CWS 214	Advanced Wastewater Treatment Plant Operations	3
CWS 230	Advanced Water Distribution Systems	3
CWS 268	Membrane Plant Operation	3
CWS 270	Public Works Supervision	3
CWS 280	Backflow Tester Training	2
CWS 282	Cross-Connection Control Specialist	3
CWS 290	Cooperative Work Experience	2
		<u>6-7</u>
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 collections system 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:

Course	Title	Units
CWS 100	Career Pathways in Water & Wastewater	3
CWS 101	Fundamentals of Water & Wastewater	3
CWS 102	Calculations in Water & Wastewater	3
CWS 106	Electrical & Instrumentation Processes	3
CWS 107	Safety in Water & Wastewater	3
CWS 132	Wastewater Collection Systems	3
CWS 134	Pumps, Motors & Valves	3
CWS 204	Applied Hydraulics	3
CWS 232	Advanced Wastewater Collection Systems	3
CWS 282	Cross-Connection Control Specialist	3
		<u>30</u>

Select at least six units from the following:

CWS 103	Water Resources Management	3
CWS 110	Laboratory Analysis for Water & Wastewater	3
CWS 112	Water Treatment Plant Operations	3
CWS 114	Wastewater Treatment Plant Operations	3
CWS 115	Wastewater Reclamation and Reuse	3
CWS 130	Water Distribution Systems	3
CWS 206	Advanced Electrical & Instrumentation Processes	3
CWS 207	Practical Skills in Water & Wastewater Systems	2
CWS 210	Advanced Laboratory Analysis for Water & Wastewater	3
CWS 214	Advanced Wastewater Treatment Plant Operations	3
CWS 230	Advanced Water Distribution Systems	3
CWS 270	Public Works Supervision	3
CWS 280	Backflow Tester Training	2
CWS 284	Cross-Connection Control Specialist-Recycled Water	3
CWS 290	Cooperative Work Experience	2
		<u>6-7</u>
Total Required		36-37
Plus General Education Requirements		

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.

VI. WASTEWATER TREATMENT OPERATIONS

Students who complete the required courses for this certificate and/or degree program will qualify to take the SWRCB certification examination for the Grade I Wastewater Plant Operator as well as nearly a dozen wastewater related certification examinations offered by CWEA. There are over 80 wastewater treatment and reclamation facilities in San Diego County that are currently licensed and regulated by the SWRCB.

Program Learning Outcomes

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

- Describe wastewater collection system components.
- Identify the characteristics and sources of municipal sewage.
- Define wastewater collection system and wastewater treatment plant terminology.
- Describe the basic principles of conventional wastewater treatment.
- Compare and contrast wastewater treatment unit processes including preliminary, primary, secondary and tertiary treatment.
- Explain the basic principles of preliminary, primary, secondary and tertiary treatment.
- Perform basic mathematical calculations and conversions relating to water flow, pressure, volume, velocity, chemical dosage, and hydraulic and organic loading.
- Recognize and comment on safety procedures applicable to service and operation of wastewater collection and treatment systems, including potential problems.

Associate in Science Degree Requirements:

Course	Title	Units
CWS 100	Career Pathways in Water & Wastewater	3
CWS 101	Fundamentals of Water & Wastewater	3
CWS 102	Calculations in Water & Wastewater	3
CWS 106	Electrical & Instrumentation Processes	3
CWS 107	Safety in Water & Wastewater	3
CWS 110	Laboratory Analysis for Water & Wastewater	3
CWS 114	Wastewater Treatment Plant Operations	3
CWS 134	Pumps, Motors & Valves	3
CWS 204	Applied Hydraulics	3
CWS 214	Advanced Wastewater Treatment Plant Operations	3
		<u>30</u>

Select at least six units from the following:

CWS 103	Water Resources Management	3
CWS 112	Water Treatment Plant Operations	3
CWS 115	Wastewater Reclamation and Reuse	3
CWS 130	Water Distribution Systems	3
CWS 132	Wastewater Collection Systems	3
CWS 206	Advanced Electrical & Instrumentation Processes	3
CWS 207	Practical Skills in Water & Wastewater Systems	2
CWS 210	Advanced Laboratory Analysis for Water & Wastewater	3
CWS 212	Advanced Water Treatment Plant Operations	3
CWS 232	Advanced Wastewater Collection Systems	3
CWS 268	Membrane Plant Operation	3
CWS 270	Public Works Supervision	3
CWS 280	Backflow Tester Training	2
CWS 282	Cross-Connection Control Specialist	3
CWS 284	Cross-Connection Control Specialist-Recycled Water	3
CWS 290	Cooperative Work Experience	2
		<u>6-7</u>
Total Required		36-37
Plus General Education Requirements		

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Wastewater Treatment Operations. 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

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.

WATER DISTRIBUTION OPERATIONS, STACKABLE CERTIFICATES OF SPECIALIZATION

WATER & WASTEWATER FUNDAMENTALS

Program Learning Outcomes

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

- Water Distribution System Operations-1 – Identify sources and characteristics of water common to water distribution systems.
- Water Distribution System Operations-4 – Using calculations and conversions, determine water flow, pressure, volume, velocity and force, and chemical dosage used in water distribution systems.
- Water Distribution System Operations-10 – Specify necessary procedures needed to safely complete field work in a water distribution system.

Certificate Requirements:

Course	Title	Units
CWS 100	Career Pathways in Water & Wastewater	3
CWS 101	Fundamentals of Water & Wastewater	3
CWS 102	Calculations in Water & Wastewater	3
CWS 107	Safety in Water & Wastewater	3
Total Required		<u>12</u>

WATER DISTRIBUTION OPERATIONS

Program Learning Outcomes

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

- Water Distribution System Operations-3 – Identify drinking water public health hazards and water quality standards common to the industry.
- Water Distribution System Operations-4 – Using calculations and conversions, determine water flow, pressure, volume, velocity and force, and chemical dosage used in water distribution systems.
- Water Distribution System Operations-6 – 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.

Certificate Requirements:

Course	Title	Units
CWS 106	Electrical & Instrumentation Processes	3
CWS 130	Water Distribution Systems	3
CWS 134	Pumps, Motors & Valves	3
Total Required		<u>9</u>

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:

Course	Title	Units
CWS 110	Laboratory Analysis for Water & Wastewater	3
CWS 204	Applied Hydraulics	3
CWS 230	Advanced Water Distribution Systems	3
Total Required		9

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:

Course	Title	Units
CWS 100	Career Pathways in Water & Wastewater	3
CWS 101	Fundamentals of Water & Wastewater	3
CWS 102	Calculations in Water & Wastewater	3
CWS 107	Safety in Water & Wastewater	3
Total Required		12

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:

Course	Title	Units
CWS 106	Electrical & Instrumentation Processes	3
CWS 110	Laboratory Analysis for Water & Wastewater	3
CWS 112	Water Treatment Plant Operations	3
Total Required		9

ADVANCED WATER TREATMENT PLANT OPERATIONS**Program Learning Outcomes**

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

- 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-6 – 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.
- Water Treatment Plant Operator-7 – 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.
- Water Treatment Plant Operator-9 – Demonstrate through testing basic knowledge of the regulations for monitoring water quality and performing water treatment.

Certificate Requirements:

Course	Title	Units
CWS 134	Pumps, Motors & Valves	3
CWS 204	Applied Hydraulics	3
CWS 212	Advanced Water Treatment Plant Operations	3
Total Required		9

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-3 – Given a wastewater collection map book, identify pipeline dimensions, pipe construction materials, direction of flow, and location of valves, services and lift stations.
- 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:

Course	Title	Units
CWS 100	Career Pathways in Water & Wastewater	3
CWS 101	Fundamentals of Water & Wastewater	3
CWS 102	Calculations in Water & Wastewater	3
CWS 107	Safety in Water & Wastewater	3
Total Required		12

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:

Course	Title	Units
CWS 132	Wastewater Collection Systems	3
CWS 134	Pumps, Motors & Valves	3
CWS 282	Cross-Connection Control Specialist	3
Total Required		9

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:

Course	Title	Units
CWS 106	Electrical & Instrumentation Processes	3
CWS 204	Applied Hydraulics	3
CWS 232	Advanced Wastewater Collection Systems	3
Total Required		9

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 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.
- 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-8 – Recognize and comment on safety procedures applicable to service and operation of wastewater collection and treatment systems, including potential problems.

Certificate Requirements:

Course	Title	Units
CWS 100	Career Pathways in Water & Wastewater	3
CWS 101	Fundamentals of Water & Wastewater	3
CWS 102	Calculations in Water & Wastewater	3
CWS 107	Safety in Water & Wastewater	3
Total Required		12

WASTEWATER TREATMENT OPERATIONS

Program Learning Outcomes

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

- Wastewater Treatment Operator-2 – 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:

Course	Title	Units
CWS 106	Electrical & Instrumentation Processes	3
CWS 110	Laboratory Analysis for Water & Wastewater	3
CWS 114	Wastewater Treatment Plant Operations	3
Total Required		9

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:

Course	Title	Units
CWS 134	Pumps, Motors & Valves	3
CWS 204	Applied Hydraulics	3
CWS 214	Advanced Wastewater Treatment Plant Operations	3
Total Required		9

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.

Cuyamaca Course	Similar Grossmont Course
CIS 105	.....CSIS 172
CIS 120	.....CSIS 114
CIS 140	.....CSIS 180
CIS 190	.....CSIS 112
CIS 191	.....CSIS 113
CIS 211	.....CSIS 132
CIS 213	.....CSIS 133
CIS 215	.....CSIS 135
CIS 240	.....CSIS 276
CIS 267	.....CSIS 281, 282
CS 119	.....CSIS 119
CS 181	.....CSIS 296
CS 182	.....CSIS 293
CS 281	.....CSIS 297
CS 282	.....CSIS 294

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/estimators 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 Technician (MCT) in Windows and Windows Server (active directory, network infrastructure and applications infrastructure), Linux Profession 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, diagnose and troubleshoot a personal computer and its associated networking hardware and software in accordance with industry standards.

Associate in Science Degree Requirements: Core Curriculum:

Course	Title	Units
CIS 120	Computer Maintenance and A+ Certification	3
CIS 121	Network Cabling Systems	3
CIS 125	Network+ Certification	3
CS 119	Program Design and Development	3
CS 119L	Program Design and Development Lab	1
		<u>13</u>

Area of Emphasis:

CIS 190	Windows Operating System	3
or		
CIS 191	Linux Operating System	3
CIS 201	CISCO Networking Academy I	3
CIS 202	CISCO Networking Academy II	3
CIS 203	CISCO Networking Academy III	3
CIS 204	CISCO Networking Academy IV	3
CIS 209	CISCO Networking Academy IX	3
or		
CIS 263	Fundamentals of Network Security	3
		<u>18</u>

Select three of the following:

CIS 210	CISCO Networking Academy-Voice	4
CIS 261	NSSA Degree Capstone	2
CIS 262	Wireless Networking	3
CIS 264	Ethical Cybersecurity Hacking	3
CIS 265	Computer Forensics	3
		<u>8-10</u>

Total Required Including Core Classes 39-41
Plus General Education Requirements

Certificate of Achievement

Students who complete only the courses required for the major including an area of emphasis qualify for a Certificate in Networking, Security and System Administration - Enterprise Networking. 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:

Course	Title	Units
CIS 120	Computer Maintenance and A+ Certification	3
CIS 121	Network Cabling Systems	3
CIS 125	Network+ Certification	3
CS 119	Program Design and Development	3
CS 119L	Program Design and Development Lab	1
		<u>13</u>

Area of Emphasis:

CIS 190	Windows Operating System	3
CIS 191	Linux Operating System	3
CIS 290	Windows Server-Installing and Configuring	2
CIS 291	Linux System Administration	3
CIS 293	Windows Server-Administering	2
CIS 294	Windows Server-Advanced Configuration	2
		<u>15</u>

Select four of the following:

CIS 140	Databases	3
CIS 162	Technical Diagramming Using Microsoft Visio	2
CIS 261	NSSA Degree Capstone	2
CIS 263	Fundamentals of Network Security	3
CIS 264	Ethical Cybersecurity Hacking	3
CIS 265	Computer Forensics	3
CIS 295	VMware Certified Professional	3
		<u>10-12</u>

Total Required Including Core Classes 38-40
Plus General Education Requirements

Certificate of Achievement

Students who complete only 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.

II. 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 web development technology to prepare for entry-level positions as web developers. The curriculum is continually updated to respond to rapidly changing industry trends.

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:

Course	Title	Units
CIS 140	Databases	3
CIS 211	Web Development I	3
CIS 213	Web Development II	3
CIS 215	JavaScript Web Programming	3
CIS 219	PHP/MySQL Dynamic Web-Based Applications	3
CS 119	Program Design and Development	3
CS 119L	Program Design and Development Lab	1
GD 105	Fundamentals of Digital Media	3
		<u>22</u>

Select one of the following:

CIS 225	Web Development Capstone	3
CIS 267	Directed Work Experience in CIS	1-4
		<u>1-4</u>

Select two of the following:

CIS 110	Principles of Information Systems	4
CIS 191	Linux Operating System	3
CS 182	Introduction to Java Programming	4
GD 126	Adobe Photoshop Digital Imaging	3
GD 130	Professional Business Practices	3
GD 217	Web Graphics	3
GD 222	Web Animation	3
		<u>6-8</u>
Total Required		29-34
Plus General Education Requirements		

Certificate of Achievement

Students who complete only the major requirements above 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 Graphic Design. 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:

Course	Title	Units
CIS 201	CISCO Networking Academy I	3
CIS 202	CISCO Networking Academy II	3
CIS 203	CISCO Networking Academy III	3
CIS 204	CISCO Networking Academy IV	3
CIS 209	CISCO Networking Academy IX	3
	Total Required	<u>15</u>

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; IPv6; advanced VLAN topologies; high availability and redundancy protocols; and LAN security.

Certificate Requirements:

Course	Title	Units
CIS 205	Implementing CISCO IP Routing (Route)	3
CIS 206	CISCO Networking Academy VI	3
CIS 207	CISCO Networking Academy VII	3
CIS 208	CISCO Networking Academy VIII	3
	Total Required	12

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:

Course	Title	Units
CS 119	Program Design and Development	3
CS 119L	Program Design and Development Lab	1
CS 181	Introduction to C++ Programming	4
	or	
CS 182	Introduction to Java Programming	4
CS 281	Intermediate C++ Programming and Fundamental Data Structures	4
	or	
CS 282	Intermediate Java Programming and Fundamental Data Structures	4
	Total Required	12

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:

Course	Title	Units
CIS 120	Computer Maintenance and A+ Certification	3
CIS 121	Network Cabling Systems	3
CIS 125	Network+ Certification	3
CIS 190	Windows Operating System	3
CIS 191	Linux Operating System	3
	Total Required	15

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

Course	Title	Units
CIS 125	Network+ Certification	3
CIS 190	Windows Operating System	3
	or	
CIS 191	Linux Operating System	3
CIS 209	CISCO Networking Academy IX	3
	or	
CIS 263	Fundamentals of Network Security	3
CIS 264	Ethical Cybersecurity Hacking	3
CIS 265	Computer Forensics Fundamentals	3
	Total Required	15

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:

Course	Title	Units
CIS 211	Web Development I	3
CIS 213	Web Development II	3
CIS 225	Web Development Capstone	3
GD 126	Adobe Photoshop Digital Imaging	3
GD 217	Web Graphics	3
	Total Required	15

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, JavaScript, PHP/MySQL, frameworks, and content management systems.

Certificate Requirements:

Course	Title	Units
CIS 211	Web Development I	3
CIS 213	Web Development II	3
CIS 215	JavaScript Web Programming	3
CIS 219	PHP/MySQL Dynamic Web-Based Applications	3
CS 119	Program Design and Development	3
	Total Required	15

COMPUTER SCIENCE**MECHATRONICS**

This certificate is designed for students interested in designing automatic electromechanical devices and systems. The curriculum is intended primarily for students interested in working in advanced manufacturing. It also provides the foundation for further studies in the skills required for the Internet of Things (physical computing and control systems).

Program Learning Outcomes

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

- Write computer programs in high-level languages such as C++ and, when appropriate, in assembly language to control the operation of a microcontroller. In particular, students will be able to apply the following microcontroller capabilities: memory-mapped I/O (input/output), analog-to-digital (A/D) conversion, and volatile and non-volatile memory.

- 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:

Course	Title	Units
CADD/ENGR 125	Intro to 3D Solid Modeling	3
	or	
CADD/ENGR 129	Engineering Solid Modeling	3
CS/ENGR 175	Mechatronics: Introduction to Microcontrollers and Robotics	3
CS/ENGR 176	Mechatronics: Prototype Design	3
CS 181	Introduction to C++ Programming	4
CIS 267	Directed Work Experience in CIS	1-4
	or	
ENGR 182	Work Experience in Engineering Technology	1-3
ENGR 100	Introduction to Engineering and Design	4
ET 110	Introduction to Basic Electronics	4
	Total Required	22-25

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

- Safety Specialist
- *Soils Analyst
- Solar Energy Installer
- Wastewater Treatment Operator
- Water Treatment Operator
- *Bachelor Degree or higher required

I. ENVIRONMENTAL MANAGEMENT

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 the Hazard Communication Standards required "Hazardous Communication Plan."
- Identify and describe 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.

Associate in Science Degree Requirements:

Course	Title	Units
BIO 112	Contemporary Issues in Environmental Resources	3
BIO 130	General Biology I	3
BIO 131	General Biology I Laboratory	1
CHEM 115	Fundamentals of Chemistry	4
EHSM 100	Introduction to Environmental and Occupational Safety and Health (OSH) Technology	4
EHSM 110	Pollution Prevention	3
EHSM 150	Hazardous Waste Management Applications	4
EHSM 200	Hazardous Materials Management (HMM) Applications	4
EHSM 210	Industrial Wastewater and Stormwater Management	4
EHSM 215	Air Quality Management	3
EHSM 230	Hazwoper Certification	3
EHSM 240	Cooperative Work Experience	1-4
		37-40

Select one of the following:

CIS 110	Principles of Information Systems	4
COMM 122	Public Speaking	3
SPAN 120	Spanish I	5
		3-5
	Total Required	40-45
	Plus General Education Requirements	

II. ENVIRONMENTAL TECHNICIAN

Program Learning Outcomes

Upon successful completion of this certificate, 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 the Hazard Communication Standards required "Hazardous Communication Plan."
- Identify and describe 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:

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

III. OCCUPATIONAL SAFETY AND HEALTH (OSH) MANAGEMENT

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.

Associate in Science Degree Requirements:

Course	Title	Units
BIO 130	General Biology I	3
BIO 131	General Biology I Laboratory	1
CHEM 115	Fundamentals of Chemistry	4
EHSM 100	Introduction to Environmental and Occupational Safety and Health (OSH) Technology	4
EHSM 130	Environmental/Occupational Health Effects of Hazardous Materials	3
EHSM 135	General Industry Safety Standards	3
EHSM 145	Construction Safety Standards	3
EHSM 200	Hazardous Materials Management (HMM) Applications	4
EHSM 201	Introduction to Industrial Hygiene and Occupational Health	4
EHSM 205	Safety and Risk Management Administration	4
EHSM 230	Hazwoper Certification	3
EHSM 240	Cooperative Work Experience	1-4
		37-40

Select one of the following:

CIS 110	Principles of Information Systems	4
COMM 122	Public Speaking	3
SPAN 120	Spanish I	5
		3-5
	Total Required	40-45
	Plus General Education Requirements	

IV. OCCUPATIONAL SAFETY AND HEALTH (OSH) TECHNICIAN

Program Learning Outcomes

Upon successful completion of this certificate, 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:

Course	Title	Units
EHSM 100	Introduction to Environmental and Occupational Safety and Health (OSH) Technology	4
EHSM 130	Environmental/Occupational Health Effects of Hazardous Materials	3
EHSM 135	General Industry Safety Standards	3
EHSM 200	Hazardous Materials Management (HMM) Applications	4
EHSM 201	Introduction to Industrial Hygiene and Occupational Health	4
EHSM 240	Cooperative Work Experience	1-4
		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	3
	6-7
Total Required	25-29

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 plantings, 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
 Greenhouse Manager
 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:

Course	Title	Units
OH 120	Fundamentals of Ornamental Horticulture	3
OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 260	Arboriculture	3
OH 290*	Cooperative Work Experience Education	3
		18

Select two of the following:

OH 263	Urban Forestry	1
OH 264	Safe Work Practices in Tree Climbing and Arboriculture	1
OH 266	Science in Practice for Arboriculture	1
		2

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
		3

Select nine units from the following:

OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 172	Introduction to Landscape Design	3
OH 174	Turf and Ground Cover Management	3
OH 221	Landscape Construction: Irrigation and Carpentry	3
OH 235	Principles of Landscape Irrigation	4
OH 250	Landscape Water Management	2
OH 255	Sustainable Urban Landscapes Principles and Practices	3
OH 275	Diagnosing Horticultural Problems	3
OH 278	Business Management for Ornamental Horticulture	3
SPAN 120	Spanish I	5
		9
	Total Required	32
	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 Arboriculture. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

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 décor.
- Identify, evaluate and discuss in correct industry vocabulary fresh floral product and permanent botanical materials, hard goods, and trends in European and Asian design influence.
- 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:

Course	Title	Units
OH 114	Floral Design I	3
OH 116	Floral Design II	3
OH 117	Wedding Design I	3
OH 118	Special Occasion Floral Design	3
OH 120	Fundamentals of Ornamental Horticulture	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 290*	Cooperative Work Experience Education	3
		21

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
		3

Select nine units from the following:

ART 120	Two-Dimensional Design	3
ART 124	Drawing I	3
BUS 111	Entrepreneurship: Starting and Developing a Business	3
BUS 128	Business Communication	3
OH 121	Plant Propagation	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 240	Greenhouse Plant Production	3
OH 278	Business Management for Ornamental Horticulture	3
		9
	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 88 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 hydraulics, 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 plans, and licensure requirements for the golf and sports turf industry.
- Demonstrate the ability to install concrete, masonry and plant material.

Associate in Science Degree Requirements:

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

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 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	5
		7
	Total Required	32
	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 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 hydraulics.
- 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:

Course	Title	Units
OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 120	Fundamentals of Ornamental Horticulture	3
OH 140	Soils	3
OH 221	Landscape Construction: Irrigation and Carpentry	3
OH 235	Principles of Landscape Irrigation	4
OH 250	Landscape Water Management	2
OH 290*	Cooperative Work Experience Education	3
		20

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 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/CADD200*	Introduction to Computer-Aided Landscape Design	3
OH 225	Landscape Contracting	3
OH 238	Irrigation System Design	3
OH 278	Business Management for Ornamental Horticulture	3
SPAN 120	Spanish I	5
		9
	Total Required	32
	Plus General Education Requirements	

*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.

Associate in Science Degree Requirements:

Course	Title	Units
OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 170	Plant Materials: Trees and Shrubs	3
OH 171	Landscape Drafting	1
OH 172	Introduction to Landscape Design	3
OH 173	Intermediate Landscape Design	3
OH 175	Advanced Landscape Design	3
OH 180	Plant Materials: Annuals and Perennials	3
OH/CADD200*	Introduction to Computer-Aided Landscape Design	3
OH/CADD201**	Advanced Computer-Aided Landscape Design	3
OH 220	Landscape Construction: Concrete and Masonry	3
OH 235	Principles of Landscape Irrigation	4
OH 278	Business Management for Ornamental Horticulture	3
OH 290***	Cooperative Work Experience Education	3
Total Required		37
Plus General Education Requirements		

*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, and those wishing to transfer to Cal Poly or other four-year degree programs will benefit from the curriculum. Graduates are employed by landscape contractors, public agencies or may be self-employed.

Program Learning Outcomes

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

- Understand the principles of plant structure function and plant growth.
- Identify 175 trees, shrubs, annuals, perennials and turf grass species commonly used in Southern California landscapes.
- Using standard industry practices, develop guidelines and demonstrate the ability to perform proper fertilizing, pruning, mulch application and irrigation of Southern California landscapes.
- Understand the elements of water management of a large landscape site.

- 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:

Course	Title	Units
OH 120	Fundamentals of Ornamental Horticulture	3
OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 235	Principles of Landscape Irrigation	4
OH 250	Landscape Water Management	2
OH 290*	Cooperative Work Experience Education	3
		24

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
		3

Select five units from the following:

OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 105	Edibles in Urban Landscapes	1.5
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	Japanese Garden Design and Construction	1
OH 225	Landscape Contracting	3
OH 255	Sustainable Urban Landscapes Principles and Practices	3
OH 260	Arboriculture	3
OH 275	Diagnosing Horticultural Problems#	3
OH 278	Business Management for Ornamental Horticulture	3
SPAN 120	Spanish I	5
		5-5.5
Total Required		32-32.5
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 Cal Poly or 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 turf grass 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 horticulture 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:

Course	Title	Units
OH 120	Fundamentals of Ornamental Horticulture	3
OH 121	Plant Propagation	3
OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 290*	Cooperative Work Experience Education	3
		21

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
		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
		8-9
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 four-year degree programs will benefit from the curriculum. Graduates are employed by landscape contractors, landscape architects

and designers, public agencies, or are self-employed.

Program Learning Outcomes

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

- Use industry accepted standards to conduct site evaluations and determine site assets and constraints for the development of aesthetically pleasing and sustainable landscapes.
- Identify common biotic and abiotic problems common to Southern California landscapes and list appropriate control measures.
- Utilize standard industry practices and principles of plant structure, function and plant growth to develop guidelines for the proper maintenance of Southern California landscapes.
- Demonstrate the ability to calculate an irrigation schedule.
- Explain the elements of water management of a large landscape site.
- Gain practical experience working in the landscape industry.

CAREER OPPORTUNITIES

Irrigation Manager
Landscape Design Consultant
Landscape Maintenance Supervisor
Landscape Manager
Landscape Water Auditor
Water Conservation Specialist

Associate in Science Degree Requirements:

Course	Title	Units
OH 120	Fundamentals of Ornamental Horticulture	3
OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 250	Landscape Water Management	2
OH 255	Sustainable Urban Landscape Principles and Practices	3
OH 263	Urban Forestry	1
OH 290*	Cooperative Work Experience Education	3
		<u>21</u>

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
		<u>3</u>

Select a minimum of eight units from the following:

OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 105	Edibles in Urban Landscapes	1.5
OH 172	Introduction to Landscape Design	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 220	Landscape Construction: Concrete and Masonry	3
OH 221	Landscape Construction: Irrigation and Carpentry	3
OH 235	Principles of Landscape Irrigation	4
OH 260	Arboriculture	3
OH 266	Science in Practice for Arboriculture	1
OH 278	Business Management for Ornamental Horticulture	3
		<u>8</u>
	Total Required	32
	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 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 the growth of plants including cultivated grapes.
- Understand the basic principles of soil science, soil fertility and water as it applies to plant growth and health of grapes in production.
- 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.

Career Opportunities

Tasting Room Management
Vineyard Design & Installation
Vineyard Maintenance Technician
Vineyard Management
Wine Cellar Assistant
Wine Cellar Master
Wine Steward
Winemaker
Winery Production Management

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
		<u>11.5</u>
	Select one of the following:	
OH 140A	Soils for Apprentices	3
OH 221A	Landscape Construction: Irrigation and Carpentry for Apprentices	3
		<u>3</u>
	Total Required	14.5

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 120	Fundamentals of Ornamental Horticulture	3
OH 170	Plant Materials: Trees and Shrubs	3
		<u>6</u>

Select one of the following:

OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 180	Plant Materials: Annuals and Perennials	3
		<u>3</u>

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
		<u>3</u>

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	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
		<u>3</u>
	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.

- 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

Associate in Science Degree Requirements:

Course	Title	Units
CADD 115	Engineering Graphics	3
or		
ENGR 100	Introduction to Engineering and Design	4
CADD 120	Introduction to Computer-Aided Drafting and Design	3
SUR/CADD 127	Survey Drafting Technology	3
MATH 170	Analytic Trigonometry	3
PHYC 110	Introductory Physics	4
SUR/ENGR 218	Plane Surveying	4
SURV 220	Boundary Control and Legal Principles	3
SURV 240	Advanced Surveying	4
		<u>27-28</u>
		Plus General Education Requirements

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.

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 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. *It is recommended that students check with transfer institutions for specific program requirements.*

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 relationships of humans, alterations in normal structure/function that characterize disease; the structure, function, classification and epidemiology of pathogenic microorganisms; and normal cellular and nutritional biochemistry.
- 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.

- Exhibit the ability to integrate the content, skills and abilities gained in courses and practice independent, self-directed learning.

Associate in Science Degree Requirements:

Course	Title	Units
BIO 140	Human Anatomy	5
BIO 141	Human Physiology	3
BIO 141L	Laboratory in Human Physiology	1
BIO 152	Paramedical Microbiology	5
CHEM 102	Introduction to General, Organic and Biological Chemistry	5
or		
CHEM 115 &	Fundamentals of Chemistry	4
CHEM 116	Introductory Organic and Biochemistry	4
COMM 122	Public Speaking	3
PSY 120	Introductory Psychology	3
SOC 120	Introductory Sociology	3
		<u>28-31</u>
		Plus General Education Requirements

Recommended Electives: CD 125 or PSY 165; MATH 160

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:

- 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 Lifelong Health, Well-Being and Self-Development will be awarded to students upon completion of general education degree requirements and 18 units in this area. These courses focus on the improvement of health and well-being and are designed to provide knowledge and tools of how to obtain optimal physical, psychological and emotional health and well-being throughout the lifespan. Potential entry-level positions of employment that students will be prepared for upon completion include those in recreation, education, and health fields. Students must take a minimum of three units in Health, three units in Exercise Science, three units in Nutrition, and three units in Self-Development. The remaining six units may be taken from any category. A maximum of one course may be earned from any combination of ES 206, 209, 213, 218, 224, 227, 230 and 249.

Program Learning Outcomes

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

- Demonstrate an understanding of optimal health and fitness in daily life through informed decision-making.
- Describe basic principles of nutrition.
- Value the importance of physical activity through the lifespan.

Health

BIO 115
HED 105, 120, 201, 202, 203, 204, 251

Exercise Science

ES 206, 209, 213, 218, 224, 227, 230, 248, 249, 250, 253, 255, 270, 271, 272, 273

Nutrition

NUTR 155, 158, 255

Self-Development

COUN 110, 120, 130, 140, 150

KINESIOLOGY



Associate Degree for TransferSM

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.

The following is required for the AA-T in Kinesiology 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:

- 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 benefits of daily 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 Arts Degree Requirements:

Core Curriculum:

Course	Title	Units
BIO 140	Human Anatomy	5
BIO 141	Human Physiology	3
BIO 141L	Laboratory in Human Physiology	1
ES 250	Introduction to Kinesiology	3

Movement Based Courses: Select one course from three different areas for a minimum of three units:

Combatives:

ES 180	Self Defense for Women	1
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Fitness:

ES 009ABC	Beginning, Intermediate, Advanced Aerobic Dance Exercise	1
ES 014ABC	Beginning, Intermediate, Advanced Body Building	1.5
ES 019ABC	Beginning, Intermediate, Advanced Physical Fitness	1.5

Individual Sports:

ES 060ABC	Beginning, Intermediate, Advanced Badminton	1
ES 076ABC	Beginning, Intermediate, Advanced Tennis	1
ES 125A	Beginning Golf	1
ES 125BC	Intermediate, Advanced Golf	1.5

Team Sports:

ES 155ABC	Beginning, Intermediate, Advanced Basketball	1
ES 170ABC	Beginning, Intermediate, Advanced Soccer	1
ES 171ABC	Beginning, Intermediate, Advanced Softball	1
ES 175ABC	Beginning, Intermediate, Advanced Volleyball	1
		15-16

List A: Select one Chemistry course:

CHEM 102	Introduction to General, Organic and Biological Chemistry	5
MATH 160	Elementary Statistics	4
		9

Total Units for Major (10-11.5 units may be double-counted with GE)	24-25
Total Units for CSU GE or IGETC-CSU	37-39
Total Transferable Elective Units	7.5-9
Total Units for Degree	60

Please note: SDSU accepts this degree for students transferring into Exercise Science Generalist.

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 benefits of daily 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.

CAREER OPPORTUNITIES

- Aerobics Instructor
- Athletics Coach
- *Athletics Trainer
- *Cardiovascular Rehabilitation
- *College Professor
- *Elementary School Teacher
- *Exercise Physiologist
- *Health Club Manager
- Personal Trainer
- *Physical Therapist/ Assistant
- *Registered Dietician
- *Secondary School Teacher
- *Teaching
- *Bachelor Degree or higher required

Associate in Science Degree Requirements:

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

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	4
		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 028ABC	Yoga	1.5
ES 060ABC	Badminton	1
ES 076ABC	Tennis	1
ES 125ABC	Golf	1-1.5
ES 155ABC	Basketball	1
ES 170ABC	Soccer	1
ES 171ABC	Softball	1
ES 175ABC	Volleyball	1
		2-3

Total Required 37.5-40.5

Plus General Education Requirements

*Students 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.

Students who complete the requirements below and hold a current First Aid/CPR certification qualify for a Certificate in Recreational Leadership-School-Based Programs. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Certificate Requirements:

Course	Title	Units
CD 125	Child Growth and Development	3
CD 134	Health, Safety and Nutrition of Young Children	3
ES 253	Physical Education in Elementary Schools	3
ES 270	Cooperative Games	1
ES 271	Fitness Walking with Children	1
ES 272	Issues in Childhood Obesity	1
	Total Required	12

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):**

Course	Title	Units
BIO 130	General Biology I	3
BIO 131	General Biology I Lab	1
BIO 140	Human Anatomy	5
BIO 141	Human Physiology	3
BIO 141L	Lab in Human Physiology	1
CHEM 115	Fundamentals of Chemistry	4
HED 120	Personal Health and Lifestyles	3
HED 201	Introduction to Public Health	3
MATH 160	Elementary Statistics	4
PSY 120	Introductory Psychology	3
		30

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

ECON 120	Principles of Macroeconomics	3
ECON 121	Principles of Microeconomics	3
HED 202	Health Professions and Organizations	3
HED 203	Substance Abuse and Public Health	3
HED 204	Health and Social Justice	3
PSY 134	Human Sexuality	3
SOC 120	Introductory Sociology	3
		33

Total Units for Major (15-18 units may be double-counted with GE) 18
Total Units for CSU GE Breadth or IGETC-CSU 37-39
Total Transferable Elective Units 3-6
Total Units for Degree 60

HUMANITIES

GENERAL STUDIES: HUMANITIES AND FINE 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:

- 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

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 18 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 through 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 constructing value judgments. Students must complete a minimum of six units in Humanities and six units in Fine 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:

- 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
ARBC 120, 121, 122, 123, 220, 221, 250, 251, 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, 250, 251
HIST 100, 101, 105, 106
HUM 110, 115, 116, 120, 140, 155
ITAL 120, 121, 220
NAKY 120, 121, 220
PHIL 110, 115, 117, 140, 160, 170
RELG 120, 130, 160, 170
SPAN 120, 121, 220, 221, 250, 251

Fine Arts

ART 100, 120, 121, 124, 125, 129, 135, 140, 141, 143, 144, 145, 146, 148, 220, 221, 222, 224, 225, 230, 231, 232, 233, 235, 236, 241, 242
MUS 110, 111, 115, 116, 117
THTR 110

HISTORY



Associate Degree for TransferSM

I. HISTORY FOR TRANSFER (AA-T)

This degree program is useful for students preparing for careers in teaching, the law, government service, and research. Completion of the degree represents fulfillment of the department mission to instill an understanding of and reverence for the past so students better appreciate their own place in the global society. Through a wide range of course offerings, the department establishes a detailed knowledge of the variety of human experiences across time. The department emphasizes reading, writing, oral presentation, primary source analysis, and research techniques to build critical thinking and life-long learning skills that benefit students in their collegiate, professional, and personal lives.

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

- Minimum of 60 semester or 90 quarter CSU-transferable units.
- Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
- Minimum of 18 semester or 27 quarter units in the major.
- A grade of "C" or better in all courses required for the major.
- 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:

- 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:

Course	Title	Units
HIST 108	Early American History	3
HIST 109	Modern American History	3
		<hr/> 6

List A: Select six units:

HIST 100	Early World History	3
	or	
HIST 105	Early Western Civilization	3
HIST 101	Modern World History	3
	or	
HIST 106	Modern Western Civilization	3
		<hr/> 6

List B: Select one course from each group:

Group 1: Select one of the following diversity courses:

ARBC 145
HIST 118, 119, 130, 131, 132, 133, 180, 181, or HIST 100 or 101 if not selected above
MUS 116
RELG 120, 130
SPAN 141, 145
Or a world language course that fulfills CSU GE Area C2 3-5

Group 2: Select one course related to history:

ANTH 120
ART 100, 140, 141, 143, 144, 145
ENGL 122, 201, 202, 214, 221, 222, 231, 232
HIST 122, 123, 124, or any history course not selected above
HUM 110, 120, 140, 155
MUS 110, 111, 115, 117
PHIL 160, 170
POSC 120, 121, 124, 130, 140
RELG 160, 170
THTR 110

3
6-8

Total Units for Major (18 units may be double-counted with GE) 18-20
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 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.

History courses also emphasize research, writing, and interpretive skills that are essential to the college's General Education mission. History faculty create a vibrant intellectual campus culture and promote civic engagement through a variety of panels, presentations, and field trips.

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.

CAREER OPPORTUNITIES

- * Anthropologist
- * Archaeologist
- Attorney
- * Cartographer
- * College History Professor
- * Historian
- * Intelligence Analyst
- * Journalist
- Legislative Assistant
- Politician
- * Research Historian
- * Secondary School Teacher
- Travel Advisor
- Technical Writer
- * Textbook Writer/Editor
- * Bachelor Degree or higher required

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

Course	Title	Units
HIST 100	Early World History	
HIST 101	Modern World History	6
HIST 105	Early Western Civilization	
HIST 106	Modern Western Civilization	6
HIST 108	Early American History	
HIST 109	Modern American History	6
		<hr/> 12

Select six units from the following:

HIST 114	Comparative History of the Early Americas	3
HIST 115	Comparative History of the Modern Americas	3
HIST 118	U.S. History: Chicano/Chicana Perspectives I	3
HIST 119	U.S. History: Chicano/Chicana Perspectives II	3
HIST 122	Women in Early American History	3
HIST 123	Women in Modern American History	3
HIST 124	History of California	3
HIST 148	Emergence of the Modern Middle East	3
HIST 180	U.S. History: Black Perspectives I	3
HIST 181	U.S. History: Black Perspectives II	3
		<hr/> 6
	Total Required	18
	Plus General Education Requirements	

Recommended Electives: ANTH 120, 140; ART 100, 140, 141, 143, 144, 145; ENGL 122, 221, 222, 231, 232, 236, 238; HIST 118, 122, 123, 124, 130, 131, 132, 133 or any history course not selected above; HUM 110, 115, 116, 120, 140, 155; MUS 110, 111, 116; PHIL 160, 170; POSC 120, 121, 124, 130, 140; RELG 120

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, globalism and cultural competence of a unique group of people.

Associate in Arts Degree Requirements:

Course	Title	Units
BIO 133	Ethnoecology	3
	or	
BIO 134	Ethnobotany	3
BIO 135	Ethnobotany/Ethnoecology Lab	1
HIST 132	Kumeyaay History I: Precontact - 1900	3
HIST 133	Kumeyaay History II: 1900 - Present	3
HUM 116	Kumeyaay Arts and Culture	3
NAKY 120	Kumeyaay I	4
NAKY 121	Kumeyaay II	4
		<hr/> 21

List A, Select One:

Course not taken above (BIO 133 or BIO 134)	3
NAKY 220 Kumeyaay III	4
	<hr/> 3-4
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 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:

- 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, globalism and cultural competence of a unique peoples.

Certificate Requirements:

Course	Title	Units
BIO 133*	Ethnoecology	3
	or	
BIO 134	Ethnobotany	3
HIST 132	Kumeyaay History I: Precontact-1900	3
NAKY 120	Kumeyaay I	4
		<hr/> 10

Select one of the following:

BIO 133*	Ethnoecology	3
HIST 133	Kumeyaay History II: 1900-Present	3
HUM 116	Kumeyaay Arts and Culture	3
NAKY 121	Kumeyaay II	4
NAKY 220	Kumeyaay III	4
		<hr/> 3-4
Total Required		13-14

*BIO 133 may be counted one time only



Associate Degree for TransferSM

PHILOSOPHY FOR TRANSFER (AA-T)

The Associate in Arts 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.

The following is required for the AA-T in Philosophy 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:

- 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:

Course	Title	Units
PHIL 110	A General Introduction to Philosophy	3
PHIL 130	Logic	3
PHIL 140	Problems in Ethics	3
		<hr/> 6

List A: Select one:

Any course from Core not used	3
PHIL 115 History of Philosophy I: Ancient	3
PHIL 117 History of Philosophy II: Modern and Contemporary	3
	<hr/> 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
	<hr/> 6

List C: Select one:

Any course from List A or B not used	3
PHIL 125 Critical Thinking	3
	3
Total Units for Major (6-15 units may be double-counted with GE)	18
Total Units for CSU GE Breadth or IGETC-CSU	37-39
Total Transferable Elective Units	11-18
Total Units for Degree	60

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

UNIVERSITY STUDIES: 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 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 Humanities and Fine Arts focus on the study of cultural, humanistic activities, and artistic expression

of human beings. Students will evaluate and interpret the ways in which people through 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 constructing value judgments. Students completing this area may be interested in the following baccalaureate majors: art, humanities, music, philosophy, religious studies, and theatre arts. Students must complete a minimum of six units in Humanities and six units in Fine 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:

- 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
ARBC 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
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

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

LANGUAGE AND COMMUNICATION

AMERICAN SIGN LANGUAGE

The Associate in Arts in American Sign Language 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.

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.

- Demonstrate an understanding of Deaf history, and the significant accomplishments and shifts over time related to the cultural community, medical, technology and education domains.

CAREER OPPORTUNITIES

Case Worker
Child Care Worker
Communication Disorders Aide
Early Childhood Education Intervention Aide
Educational Classroom Aide
+Educational Counselor
*Interpreter
Preschool Aide
+Program Coordinator
+Rehabilitation Counselor

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

Associate in Arts Degree Requirements:

Course	Title	Units
ASL 120	American Sign Language I	4
ASL 121	American Sign Language II	4
ASL 130	American Sign Language: Fingerspelling	3
ASL 140	Inside Deaf Culture	3
ASL 220	American Sign Language III	4
ASL 221	American Sign Language IV	4
		22

Select one unit from the following:

ASL 125	American Sign Language with Infants and Toddlers	1
ASL 126	American Sign Language with School Age Children	1
		1
	Total Required	23
	Plus General Education Requirements	

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 80 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	Units
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
		16

Select five to six units from the following:

ASL 125	American Sign Language with Infants and Toddlers	1
ASL 126	American Sign Language with School Age Children	1
ASL 130	American Sign Language: Fingerspelling	3
ASL 140	Inside Deaf Culture	3
		5-6
	Total Required	21-22

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 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	Units
ARBC 120	Arabic I	5
ARBC 121	Arabic II	5
ARBC 145	Arabic Civilizations	3
ARBC 122	Arabic for the Arabic Speaker I	5
	or	
ARBC 220	Arabic III	5
ARBC 123	Arabic for the Arabic Speaker II	5
	or	
ARBC 221	Arabic IV	5
ARBC 250	Conversational Arabic I	3
	or	
ARBC 254	Conversational Iraqi Dialect	3
ARBC 251	Conversational Arabic II	3
	Total Required	29
	Plus General Education Requirements	

Certificate of Achievement

Students who complete only the major 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.

COMMUNICATION



Associate Degree
for TransferSM

I. COMMUNICATION STUDIES FOR TRANSFER (AA-T)

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.

Associate in Arts Degree Requirements:**Core Curriculum:**

Course	Title	Units
COMM 122	Public Speaking	3

List A: Select two of the following:

COMM 120	Interpersonal Communication	3
COMM 137	Critical Thinking in Group Communication	3
COMM 145	Argumentation	3
		6

List B: Select two of the following:

COMM 110	Introduction to Mass Communication	3
COMM 124	Intercultural Communication	3
COMM 240	Speech and Debate Competition III	3
	Any course from List A not selected above	3
		6

List C: Select one of the following:

ANTH 120	Cultural Anthropology	3
ENGL 122	Introduction to Literature	3
ENGL 124	Advanced Composition: Critical Reasoning and Writing	3
SOC 120	Introductory Sociology	3
	Any course from Lists A or B not selected above	3
		3

Total Units for Major	18
Total Units for CSU GE Breadth or IGETC-CSU	37-39
Total Transferable Elective Units	3
Total Units for Degree	60

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
		<u>12</u>

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
		<u>6</u>
	Total Required	18
	Plus General Education Requirements	

ENGLISH



Associate Degree for TransferSM

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
		<u>6</u>

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
		<u>6</u>

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
		<u>3</u>

List C: Select one of the following:

ENGL 236	Chicano/Chicana Literature	3
ENGL 238	Black Literature	3
ARAM 120	Aramaic I	5
ARAM 121	Aramaic II	5
ARAM 220	Aramaic III	5
ARBC 120	Arabic I	5
ARBC 121	Arabic II	5
ARBC 220	Arabic III	5
ARBC 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
		<u>3-5</u>

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	13-15/15-17
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 own 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

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
		12

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
		6

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
		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
		24
	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.

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 verbal communication methods, as well as develop and advance their oral and written communication skills. 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, 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 122, 124, 126, 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

SPANISH



Associate Degree
for TransferSM

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
		20

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
		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

***Substitution Courses:**

SPAN 250 may be substituted for SPAN I for students placing at the level of SPAN II.

SPAN 251 may be substituted for SPAN II for students placing into SPAN III.

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

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, profession, 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:

Course	Title	Units
SPAN 120	Spanish I	5
SPAN 121	Spanish II	5
SPAN 220	Spanish III	5
SPAN 221	Spanish IV	5
SPAN 250	Conversational Spanish I	3
SPAN 251	Conversational Spanish II	3
		<hr/> 26

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
		<hr/> 3
	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
 ARBC 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, 220
 SPAN 120, 121, 220, 221, 250, 251

* Course not UC transferable

STEM

BIOLOGICAL SCIENCES

Associate Degree
for TransferSM

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:

- 60 semester or 90 quarter CSU-transferable units;
- The Intersegmental General Education Transfer Curriculum (IGETC) for Science, Technology, Engineering and Mathematics (STEM) pattern for the CSU;*
- Minimum of 18 semester or 27 quarter units in the major or area of emphasis;
- Minimum grade point average (GPA) of 2.0;
- 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
BIO 230	Principles of Cellular, Molecular and Evolutionary Biology	4
BIO 240	Principles of Ecology, Evolution and Organismal Biology	5
		<u>9</u>

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	<u>60</u>

*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
- Biological Technician
- Biomedical Equipment Technician
- Biotechnologist
- *Botanist
- Clinical Lab Technologist
- *Cytologist
- *Ecologist
- *Environmental Engineer
- Environmental Technician
- *Environmental Microbiologist
- Genetic Engineering Technician
- Greenhouse Assistant
- Laboratory Technician
- *Physical Therapist
- *Public Health Biologist

- Purification Technician
- Research Assistant
- Safety Specialist
- *Teacher
- Technical Writer
- Waste Management Technician
- *Bachelor Degree or higher required

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	

CHEMISTRY

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 Technologist
- Fishery Specialist
- *Food And Drug Inspector
- *Forensic Specialist
- Laboratory Technician

- * Materials Scientist
- Medical Technologist
- * Microbiologist
- * Organic Chemist
- * Physician
- * Polymer Chemist
- Sales Representative
- Sanitarian Technician
- * Bachelor Degree or higher required

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	

Note:

- Students pursuing an emphasis in biochemistry should also take the following courses: BIO 230, 240.
- Students who intend to enroll at UCSD should take MATH 285 and check with the Counseling Center regarding program options.

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 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
- Electrical 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

* Bachelor's degree or higher required

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.

Associate in Science Degree Requirements:

Course	Title	Units
CHEM 141	General Chemistry I	5
ENGR 100	Introduction to Engineering and Design	4
ENGR 119	Basic Engineering CAD	3
	or	
CADD 120	Introduction to Computer-Aided Drafting and Design	3
ENGR 120	Engineering Computer Applications	3
ENGR 200	Engineering Mechanics–Statics	3
ENGR/SURV 218	Plane Surveying	4
ENGR 220	Engineering Mechanics–Dynamics	3
ENGR 260	Engineering Materials	3
MATH 160	Elementary Statistics	4
MATH 180	Analytic Geometry and Calculus I	5
MATH 280	Analytic Geometry and Calculus II	4
MATH 281	Multivariable Calculus	4
MATH 285	Differential Equations	3
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
	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.

Associate in Science Degree Requirements:

Course	Title	Units
CHEM 141	General Chemistry I	5
CS 181	Introduction to C++ Programming	4
	or	
CS 182	Introduction to Java Programming	4
CS 281	Intermediate C++ Programming	4
	or	
CS 282	Intermediate Java Programming and Fundamental Data Structures	4
ENGR 100	Introduction to Engineering and Design	4
ENGR 210	Electric Circuits	4
ENGR 270	Digital Design	4
MATH 180	Analytic Geometry and Calculus I	5
MATH 245	Discrete Mathematics	3
	or	
MATH 281	Multivariable Calculus	4
MATH 280	Analytic Geometry and Calculus II	4
MATH 284	Linear Algebra	3
MATH 285	Differential Equations	3
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
	Total Required	53-54
	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.

Associate in Science Degree Requirements:

Course	Title	Units
CHEM 141	General Chemistry I	5
ENGR 100	Introduction to Engineering and Design	4
ENGR 120	Engineering Computer Applications	3
ENGR 200	Engineering Mechanics–Statics	3
ENGR 210	Electric Circuits	4
ENGR 220	Engineering Mechanics–Dynamics	3
ENGR 260	Engineering Materials	3
MATH 180	Analytic Geometry and Calculus I	5
MATH 280	Analytic Geometry and Calculus II	4
MATH 281	Multivariable Calculus	4
MATH 285	Differential Equations	3
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
PHYC 210	Wave Motion and Modern Physics	5
	Total Required	56
	Plus General Education Requirements	

GENERAL STUDIES: SCIENCE AND MATHEMATICS

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 Science and Mathematics will be awarded to students upon completion of general education degree requirements and 18 units in this area. These courses emphasize the study of mathematical and quantitative reasoning skills and apply the 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, and more advanced skills for applications in the physical and life sciences. 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 any category.

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.

Science

ANTH 130
 ASTR 110, 112
 BIO 112, 115, 122, 130, 131, 133, 134, 135, 140, 141, 141L, 152, 230, 240, 251
 CHEM 102, 115, 116, 120, 141, 142, 231, 232
 ET 110
 GEOG 120, 121
 GEOL 104, 110, 111
 OCEA 112, 113
 PHYC 110, 130, 131, 190, 200, 210

Mathematics

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

CADD and Engineering

CADD 115, 120, 125, 129, 131
 ENGR 100, 119, 120, 125, 129, 175, 176, 218, 270

Computer Science

CS 119, 119L, 181, 182, 281, 282

MATHEMATICS



Associate Degree
for TransferSM

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.

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:

Core Curriculum:

Course	Title	Units
MATH 180	Analytic Geometry and Calculus I	5
MATH 280	Analytic Geometry and Calculus II	4
MATH 281	Multivariable Calculus	4
		13

List A: Select one of the following:

MATH 284	Linear Algebra	3
MATH 285	Differential Equations	3
		3

List B: Select one of the following:

CS 181	Intro to C++ Programing	4
MATH 160	Elementary Statistics	4
MATH 245	Discrete Mathematics	3
PHYC 190	Mechanics and Heat	5
Any course from List A not selected above		3
		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.

II. 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.

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 in STEM or business programs.
- Select and apply appropriate definitions, postulates, and theorems to prove mathematical statements.

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:

Course	Title	Units
MATH 180	Analytic Geometry and Calculus I	5
MATH 280	Analytic Geometry and Calculus II	4
MATH 281	Multivariable Calculus	4
MATH 284	Linear Algebra	3
		16

Select one of the following:

MATH 245	Discrete Math	3
MATH 285	Differential Equations	3
		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
		3-5
	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.

PHYSICS**Associate Degree for TransferSM****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 principles, and quantum mechanics in one and three dimensions, statistical physics and nuclear physics.

Associate in Science Degree Requirements:

Course	Title	Units
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 Units for Major (7 units may be double-counted with GE)	28
	Total Units for IGETC-CSU	37
	Total Transferable Elective Units	2
	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. 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
- * Biophysicist
- * 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
- * Bachelor Degree or higher required

Associate in Science Degree Requirements:

Course	Title	Units
CHEM 141	General Chemistry I	5
CHEM 142	General Chemistry II	5
MATH 180	Analytical Geometry and Calculus I	5
MATH 280	Analytical 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	38
	Plus General Education Requirements	

UNIVERSITY STUDIES: SCIENCE AND MATHEMATICS

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 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
 GEOL 104, 110, 111
 OCEA 112, 113
 PHYC 110, 130, 131, 190, 200, 210

Mathematics

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

* Course not UC transferable

VISUAL & PERFORMING ARTS

ART



Associate Degree for TransferSM

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 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 according to the elements of art, the principles of design and aesthetic qualities.
- Demonstrate how the arts help to understand the past.
- Define artistic historical periods and transitions.

Associate in Arts Degree Requirements:

Core Curriculum:

Course	Title	Units
ART 140	Survey of Western Art I: Prehistory through Middle Ages	3
ART 141	Survey of Western Art II: Renaissance through Modern	3
ART 124	Drawing I	3
		<u>9</u>

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
 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
 3
 Total Units for Major (6-9 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



Associate Degree for TransferSM

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.

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.
- 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 creative skills in problem solving, communication, management of time, and identifying resources that contribute to lifelong learning, career skills, and careers in and related to the visual arts.

Associate in Arts Degree Requirements:

Core Curriculum:

Course	Title	Units
ART 120	Two-Dimensional Design	3
ART 124	Drawing I	3
ART 129	Three-Dimensional Design	3
ART 141	Survey of Western Art II: Renaissance through Modern	<u>3</u>
		12

List A: Select one of the following:

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	<u>3</u>
		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	<u>3</u>
		9

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 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 artists;
- 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:

Course	Title	Units
ART 120	Two-Dimensional Design	3
ART 124	Drawing I	3
ART 129	Three-Dimensional Design	3
ART 140	Survey of Western Art I: Prehistory through Middle Ages	3
ART 141	Survey of Western Art II: Renaissance through Modern	3
ART 149	History of Graphic Design	3
ART 177	Digital Drawing and Painting	3
ART 230	Figure Drawing I	3
ART 241	Illustration 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
		<u>39</u>

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
		<u>3</u>
	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 the role and development of the visual arts in the past and present cultures throughout the world, noting human diversity as it relates to the visual arts and the artists.
- Analyze, access 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.

CAREER OPPORTUNITIES

- * Advertising Specialist Antique Dealer
- * Art Conservator
- * Art Therapist Arts Administration Cartoonist
- * Curator Display Manager
- * Fashion Designer Gallery Owner
- Illustrator Independent Artist
- * Interior Design Jewelry Designer Museum Technician Painter
- Police Artist Set Designer
- * Teacher/Professor
- * Bachelor Degree or higher required

Associate in Arts Degree Requirements:

Course	Title	Units
ART 120	Two-Dimensional Design	3
ART 121	Painting I	3
ART 124	Drawing I	3
ART 125	Drawing II	3
ART 140	Survey of Western Art I: Prehistory through Middle Ages	3
ART 141	Survey of Western Art II: Renaissance through Modern	3
ART 230	Figure Drawing I	3
GD 105	Fundamentals of Digital Media	3
		<u>24</u>

Select six units from the following:

ART 129	Three-Dimensional Design	3
ART 135	Watercolor I	3
ART 143	Modern Art	3
ART 145	Contemporary Art	3
ART 220	Painting II	3
ART 231	Figure Drawing II	3
ART 241	Illustration I	3
ART 242	Illustration II	3
GD 225	Digital Illustration	3
		<u>6</u>
	Total Required	30
	Plus General Education Requirements	

Recommended Electives: HIST 105, HUM 155, RELG 120

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	Similar 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
		<u>27</u>

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	1-4
		<u>7-10</u>
	Total Required	34-37
	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	<u>15</u>

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	<u>15</u>

MUSIC



Associate Degree
for TransferSM

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	<u>22</u>
	Total Units for IGETC-CSU	37
	Total Transferable Elective Units	1
	Total Units for Degree	<u>60</u>

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:

Course	Title	Units
MUS 105	Music Theory and Practice I	4
MUS 106	Music Theory and Practice II	4
MUS 110	Great Music Listening	3
MUS 116	Introduction to World Music	3
MUS 119	Cooperative Work Experience in Music Education	1
MUS 120	Introduction to Music Technology	3
MUS 126	Class Guitar I	2
MUS 132	Class Piano I	3
MUS 133	Class Piano II	3
MUS 170	Class Voice	2
MUS 190	Performance Studies	.5
MUS 191	Performance Studies	.5
MUS 232	Class Piano III	3
MUS 233	Class Piano IV	3
MUS 290	Performance Studies	.5
MUS 291	Performance Studies	.5
		<u>36</u>

Select four of the following:

MUS 108	Rock, Pop and Soul Ensemble	1
MUS 109	Rock, Pop and Soul Ensemble	1
MUS 152	Concert Band	1
MUS 153	Concert Band	1
MUS 158	Chorus	1
MUS 159	Chorus	1
MUS 208	Rock, Pop and Soul Ensemble	1
MUS 209	Rock, Pop and Soul Ensemble	1
MUS 252	Concert Band	1
MUS 253	Concert Band	1
MUS 258	Chorus	1
MUS 259	Chorus	1
		<u>14</u>
	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
- * Arts 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

Associate in Arts Degree Requirements:

Course	Title	Units
MUS 104	Introduction to the Music Industry	3
MUS 105	Music Theory and Practice I	4
MUS 106	Music Theory and Practice II	4
MUS 120	Introduction to Music Technology	3
MUS 121	Music Industry Seminar	1
MUS 122	Music Industry Seminar	1
MUS 132	Class Piano I	3
MUS 133	Class Piano II	3
MUS 161	Cooperative Work Experience in Music Industry	1
MUS 221	Music Industry Seminar	1
MUS 222	Music Industry Seminar	1
		<u>25</u>

Select two of the following:

MUS 110	Great Music Listening	3
MUS 111	History of Jazz	3
MUS 115	History of Rock Music	3
MUS 116	Introduction to World Music	3
MUS 184	Digital Audio Recording and Production	3
		<u>6</u>

Select one of the following:

BUS 120	Financial Accounting	4
BUS 125	Business Law: Legal Environment of Business	3
		<u>3-4</u>

Select four of the following:

MUS 108	Rock, Pop and Soul Ensemble	1
MUS 109	Rock, Pop and Soul Ensemble	1
MUS 152	Concert Band	1
MUS 153	Concert Band	1
MUS 158	Chorus	1
MUS 159	Chorus	1
MUS 190	Performance Studies	.5
MUS 191	Performance Studies	.5
MUS 208	Rock, Pop and Soul Ensemble	1
MUS 209	Rock, Pop and Soul Ensemble	1
MUS 252	Concert Band	1
MUS 253	Concert Band	1
MUS 258	Chorus	1
MUS 259	Chorus	1
MUS 290	Performance Studies	.5
MUS 291	Performance Studies	.5
		<u>2-4</u>

Total Required 36-39
Plus General Education Requirements

EXPLORATORY

CALIFORNIA STATE UNIVERSITY GENERAL EDUCATION BREADTH

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.

INTERSEGMENTAL GENERAL EDUCATION TRANSFER CURRICULUM (CSU OR UC)

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).