Associate Degree Programs and Certificates

Academic & Career Pathways

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

LANGUAGE & COMMUNICATION
American Sign Language
Arabic Studies
Communication
English
Spanish

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

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

STEM
Biological Science
Marine Biology
Chemistry
Engineering
Environmental Science
Mathematics
Physics

HEALTH SCIENCE
Biology Pre-Allied Health

Kinesiology

Public Health

CULTURE, PEOPLE & IDEAS
Ethnic Studies
History
Kumeyaay Studies
Philosophy

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).

✦ ASSOCIATE DEGREE FOR TRANSFER   ◆ CERTIFICATE OF ACHIEVEMENT
❖ ASSOCIATE DEGREE   ✱ CERTIFICATE OF SPECIALIZATION

BEHAVIORAL & SOCIAL SCIENCES

Associate Degree for Transfer℠

ANTHROPOLOGY FOR TRANSFER (AA-T)

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

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

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

Program Learning Outcomes

Upon successful completion of this program, students will be able to:
- Demonstrate an understanding of the core concepts of archaeology, cultural anthropology and physical anthropology;
- Demonstrate knowledge of cultural variation and diversity of perspectives, practices and beliefs found within and across cultures;
- Understand long term changes in the conditions that have shaped humans and the environments they inhabit.

Associate in Arts for Transfer Degree Requirements:

Course	Title	Units
Required Core:		
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 *(must be taken if GEOL 110 is selected)*	1

GEOL 104	Earth Science	3
and		
GEOG 121	Physical Geography: Earth Systems Laboratory *(must be taken if GEOL 104 is selected)*	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 Transfer℠

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 Transfer℠

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

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

The following is required for the AS-T in Early Childhood Education for Transfer degree:

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

Program Learning Outcomes

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

- Integrate the key developmental concepts and teaching strategies into a cogently articulated philosophy of 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

Course	Title	Units
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

Course	Title	Units
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:

Course	Title	Units
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

Select one of the following:

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

Select one of the following:

Course	Title	Units
CD 137	Administration of Child Development Programs I	3
CD 138	Administration of Child Development Programs II	3
		3
	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
		9

Select two of the following:

Course	Title	Units
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	15

*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 Transfer℠

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

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

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

1. Minimum of 60 semester or 90 quarter CSU-transferable units.
2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
3. Minimum of 18 semester or 27 quarter units in the major.
4. A grade of "C" or better in all courses required for the major.
5. Certified completion of the California State University General Education (CSU GE) Breadth pattern OR the Intersegmental General Education 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
		46

List A

Course	Title	Units
ENGL 124	Advanced Composition: Critical Reasoning and Writing	3

List B: Select one:

Course	Title	Units
ART 100	Art Appreciation	3
MUS 110	Great Music Listening	3
THTR 110	Introduction to the Theatre	3
		3

List C: Select eight units:

Course	Title	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
		8
	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

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

ETHNIC STUDIES

Ethnic Studies is a dynamic academic discipline and community that provides an understanding of the history, culture, and contributions of African Americans, Asian Americans, Latino/a/x Americans, Middle Eastern Americans, and Native Americans. Courses introduce students to the concepts of race and ethnicity, how race and ethnicity intersect with other forms of identity, and the role of power and inequality in the United States. It is an interdisciplinary degree, drawing from the arts, English, history, humanities, Kumeyaay studies, political science, sociology, and others. Ethnic Studies faculty foster community and promote civic engagement and social justice through a variety of panels, presentations, and field trips.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:
- Interpret and evaluate evidence by analyzing biases, patterns, trends, and relationships.
- Evaluate and apply subject matter to students' lived experiences and current events.
- Analyze how power and privilege operate in society, through the categories of race, class, gender, ethnicity, and sexuality.
- Develop and support arguments with evidence, including academic and organic (i.e. cultural, traditional, and experiential).
- Research and explore career options and/or obtain experience in a career field.

Associate in Arts Degree Requirements:
Core Curriculum:
Course   Title   Units

ETHN/HIST 107	History of Race and Ethnicity in the U.S.	3
ETHN/HUM 111	Culture, Art, and Ideas of the United States	3
ETHN/SOC 114	Introduction to Race & Ethnicity	3
		9

List A: Select two of the following:

ETHN/HIST 118	U.S. History: Chicano/Chicana Perspectives I	3
ETHN/HIST 119	U.S. History: Chicano/Chicana Perspectives II	3
ETHN/HIST 130	U.S. History and Cultures: Native American Perspectives I	3
ETHN/HIST 131	U.S. History and Cultures: Native American Perspectives II	3
ETHN/HIST 132	Kumeyaay History I: Precontact – 1845	3
ETHN/HIST 133	Kumeyaay History II: 1846 – Present	3
ETHN/HIST 180	U.S. History: Black Perspectives I	3
ETHN/HIST 181	U.S. History: Black Perspectives II	3
		6

List B: Select two of the following:

ETHN/ENGL 236	Chicana/o Literature	3
ETHN/ENGL 238	Black Literature	3
ETHN/POSC 165	Introduction to the Politics of Race and Gender	3
ETHN/POSC 166	Introduction to Native American Politics and Policy	3
ETHN/SOC 150	Latinx Sociology	3
		6

	Total Required	21
	Plus General Education Requirements	

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. Choose a minimum of 18 units from one Area of Emphasis:
- 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 three units in Social Science and three units in Behavioral Science. The remaining twelve 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
ETHN 107, 114, 118, 119, 130, 131, 132, 133, 150, 165, 166, 180, 181
GEOG 106, 122, 130
HIST 100, 101, 105, 106, 107, 108, 109, 118, 119, 122, 123, 124, 130, 131, 132, 133, 148, 180, 181, 275, 276, 277
POSC 120, 121, 124, 130, 140, 165, 166, 170
SOC 114, 120, 125, 130, 138, 140, 150
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

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.

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:
- Remember the major concepts of subfields of political science and their relevance to political behavior and political institutions across diverse communities and cultures.
- Understand the historical roots and major theories, conceptualizations, operationalizations, and measurements utilized in political science and its subfields from multiple perspectives.
- Apply the scientific method to explain political behavior and political institutions.
- Analyze the application of political science's abstract theories, empirical regularities, and public policy applications towards civic engagement domestically and internationally.
- Evaluate how concepts of political actors, networks, and status quo are theoretically and empirically analyzed and their application across diverse communities and cultures.
- Create a professional research project that uses the scientific method and follows ethical guidelines to analyze political phenomenon and/or a public policy project that utilizes data, geographic information systems, policy, and communication analysts' perspectives.

Career Opportunities:
Students who earn an AA-T in Political Science from Cuyamaca College will be prepared for entry level positions such as a:
- Staff member to an elected official: local (City Councilor or Mayor), state (i.e. Statewide constitutional official, State Senator, State Assembly Member), or federal (i.e. U.S. Senator or Member of Congress)
- Staff member to an appointed official: local (i.e. City Manager or County Chief Executive Officer), regional (i.e. San Diego Association of Governments), or state (i.e. California State Water Resources Control Board Commissioner)
- Staff member in public, private, or non-profit sector's external affairs, government affairs, or regulatory affairs department
- Intern with an international government or non-governmental organization or institution
- Research assistant to a professor at a 4-year university, or a researcher at a public policy think tank, or in an institutional research department

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
POSC 170	Introduction to Political Science Research Methods	3
		9

List B: Select two of the following:

POSC 140	Introduction to California Governments and Politics	3
MATH 160	Elementary Statistics	4
or		
PSY 215	Statistics for the Behavioral Sciences	4
Any course from List A not selected above		3
		6-7

Total Units for Major (9 units may be double-counted with GE)	18-19
Total Units for CSU GE Breadth or IGETC-CSU	39-37
Total Transferable Elective Units	11-12/13-14
Total Units for Degree	60

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:

Course	Title	Units
BIO 130	General Biology I	3
PSY 140	Physiological Psychology	3
		3

List B: Select one of the following:

Course	Title	Units
PSY 138	Social Psychology	3
PSY 150	Development Psychology	3
PSY 211	Cognitive Psychology	3
	Any course not selected above	3
		3

List C: Select one of the following:

Course	Title	Units
PSY 125	Cross-Cultural Psychology	3
PSY 134	Human Sexuality	3
PSY 220	Learning	3
	Any course not selected above	3
		3

	Units
Total Units for Major (15 units may be double-counted with GE)	19
Total Units for CSU GE Breadth or IGETC-CSU	39/37
Total Transferable Elective Units	17/19
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 Transfer℠

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:

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

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Evaluate society and make appropriate suggestions for improvement directed at social change.
• Analyze and interpret the diversity of social experience using a sociological perspective.
• Engage in critical thinking, analysis and problem solving about social issues.
• Employ theoretical and methodological approaches to sociological observations of everyday life.
• Evaluate the implications of multicultural diversity and global interdependence.

Associate in Arts Degree Requirements:

Core Curriculum:

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:

Course	Title	Units
ANTH 120	Cultural Anthropology	3
PSY 120	Introductory Psychology	3
		3

	Units
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.

BEHAVIORAL & SOCIAL SCIENCES • BUSINESS

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 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, either to obtain the necessary skills for an entry level office position, start their own business, or 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 128	Business Communication	3
or		
BUS 125	Business Law	3
BUS 129	Payroll Accounting and Business Taxes	2
BUS 176	Computerized Accounting Applications	2
	Total Required	16-17

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 Transfer℠

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
		17

List A: Select one of the following:

MATH 160*	Elementary Statistics	4
MATH 178*	Calculus for Business, Social and Behavioral Sciences	4
		4

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
		7-8
	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	32
	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 161	Business Internship	1-3
BUS 195	Principles of Money Management for Success	3

BUSINESS

BOT 174	Computer Concepts and Applications	3
or		
CIS 110	Principles of Information Systems	4
ECON 110	Economic Issues & Policies	3
or		
ECON 120	Principles of Macroeconomics	3
	Total Required	25-29
	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. 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.

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
Small Business Owner/Manager
Entrepreneur
Intrapraneur (acting as an entrepreneur within a large company)
Franchisee
Consultant
Assistant Manager
Small Business Specialist
Associate Account Manager
Small Business Developer
Business Assistant Coordinator

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
		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
		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
		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.

V. 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	3
		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	1
		4
	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
		18

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
		6
	Total Required	24
	Plus General Education Requirements	

BUSINESS

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
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.

Associate in Science Degree Requirements:

Course	Title	Units
BOT 100	Basic Keyboarding	1
BOT 101AB	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
		17-26

Select at least five units from the following:

Course	Title	Units
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
		5-5.5
	Total Required	22-31.5
	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
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.

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 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
BUS 128	Business Communication	3
		22

Select at least three units from the following:

Course	Title	Units
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
		3-4

Select at least three units from the following:

Course	Title	Units
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
		3-3.5
	Total Required	28-29.5
	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

BUSINESS

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 100	Basic Keyboarding	1
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	10

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 106	Effective Job Search	1
BOT 107	Office Systems and Procedures	2
BOT 114	Essential Word	1
BOT 115	Essential Excel	1
BUS 128	Business Communication	3
	Total Required	9-11

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 102AB	Intermediate Keyboarding/ Document Processing I-II	3
BOT 107	Office Systems and Procedures	2
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

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 economic models to predict changes in societal outcomes based on changes in economic variables.
• Identify and apply economic principles to personal-life decisions.

Associate in Arts for Transfer Degree Requirements:

Course	Title	Units
Required Core:		
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	9-12/9
	General Education Requirements	39/37
	Electives	7-12/9-11
	Total Degree Units	60

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. Choose a minimum of 18 units from one Area of Emphasis:
• Business and Technology

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 121, 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:

1. Legal Research, Analysis and Writing
2. Ethics and the Mechanics of Law
3. 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
		21

Select at least six units from the following:

Course	Title	Units
PARA 120	Introduction to Administrative Law	2
PARA 121	Social Security Law - Practice and Procedure	1
PARA 125	Business Organizations	1
PARA 140	Introduction to Criminal Law and Procedures	1
PARA 145	Estate Planning	2
PARA 146	Probate and Administration of Estates	1
PARA 150	Family Law (Divorce, Separation, Nullity, and Paternity)	2
PARA 151	Family Law (Custody, Visitation, and Support)	1
PARA 160	Personal Injury	1
PARA 170	Worker's Compensation	1
PARA 175	Electronic Discovery: Practice and Procedure	1
PARA 250*	Internship	1-3
		6
	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
HIST 100, 101, 105, 106
HUM 110, 115, 116, 120, 140, 155
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
In the Real Estate curriculum, special attention is given to the California Department of Real Estate license requirements. 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 the student for both the salesperson and broker state examinations. 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
†California Bureau of Real Estate Appraisers 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
		15

Select three of the following including one Accounting course:
BUS 110*	Introduction to Business	3
BUS 120	Financial Accounting	4
or		
BUS 109	Elementary Accounting	3
RE 197	Real Estate Economics	3
RE 201	Real Estate Property Management	3
RE 250*	Real Estate Internship	1-4
Elective	(select one elective from below)	3
		7-11

Electives:
BUS 125	Business Law: Legal Environment of Business	3
RE 204	Real Estate Office Administration	3
	Total Required	22-26
	Plus General Education Requirements	

*Non Department of Real Estate Licensing course

Certificate of Achievement
Students who complete only the major requirements above qualify for a Certificate of Achievement 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
In the Real Estate curriculum, special attention is given to the California Department of Real Estate license requirements. This is an overall comprehensive program that will provide the student with the educational requirements needed to take the examination for a State of California Real Estate Broker license. An applicant for the broker license must have taken the eight (8) real estate courses required for this Broker's License Certificate of Achievement before taking the California State Broker Examination.

Program Learning Outcomes
Upon successful completion of this Certificate of Achievement, 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.

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
RE 201	Real Estate Property Management	3
BUS 109	Elementary Accounting	3
or		
BUS 120	Financial Accounting	4
BUS 125	Business Law: Legal Environment of Business	3
Total Required		24-25

Certificate of Achievement
Students who complete the requirements above qualify for a Certificate of Achievement 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

CULTURE, PEOPLE & IDEAS

ETHNIC STUDIES

Ethnic Studies is a dynamic academic discipline and community that provides an understanding of the history, culture, and contributions of African Americans, Asian Americans, Latino/a/x Americans, Middle Eastern Americans, and Native Americans. Courses introduce students to the concepts of race and ethnicity, how race and ethnicity intersect with other forms of identity, and the role of power and inequality in the United States. It is an interdisciplinary degree, drawing from the arts, English, history, humanities, Kumeyaay studies, political science, sociology, and others. Ethnic Studies faculty foster community and promote civic engagement and social justice through a variety of panels, presentations, and field trips.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Interpret and evaluate evidence by analyzing biases, patterns, trends, and relationships.
• Evaluate and apply subject matter to students' lived experiences and current events.
• Analyze how power and privilege operate in society, through the categories of race, class, gender, ethnicity, and sexuality.
• Develop and support arguments with evidence, including academic and organic (i.e. cultural, traditional, and experiential).
• Research and explore career options and/or obtain experience in a career field.

Associate in Arts Degree Requirements:
Core Curriculum:

Course	Title	Units
ETHN/HIST 107	History of Race and Ethnicity in the U.S.	3
ETHN/HUM 111	Culture, Art, and Ideas of the United States	3
ETHN/SOC 114	Introduction to Race & Ethnicity	3
		9

List A: Select two of the following:

ETHN/HIST 118	U.S. History: Chicano/Chicana Perspectives I	3
ETHN/HIST 119	U.S. History: Chicano/Chicana Perspectives II	3

ETHN/HIST 130	U.S. History and Cultures: Native American Perspectives I	3
ETHN/HIST 131	U.S. History and Cultures: Native American Perspectives II	3
ETHN/HIST 132	Kumeyaay History I: Precontact – 1845	3
ETHN/HIST 133	Kumeyaay History II: 1846 – Present	3
ETHN/HIST 180	U.S. History: Black Perspectives I	3
ETHN/HIST 181	U.S. History: Black Perspectives II	3
		6

List B: Select two of the following:

ETHN/ENGL 236	Chicana/o Literature	3
ETHN/ENGL 238	Black Literature	3
ETHN/POSC 165	Introduction to the Politics of Race and Gender	3
ETHN/POSC 166	Introduction to Native American Politics and Policy	3
ETHN/SOC 150	Latinx Sociology	3
		6

Total Required	21
Plus General Education Requirements	

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. Choose a minimum of 18 units from one Area of Emphasis:
• Humanities and Fine Arts

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 three units in Humanities and three units in Fine Arts. The remaining twelve 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
ENGL 122, 201, 202, 217, 221, 222, 231, 232, 236, 238, 270, 271
ETHN 111, 236, 238

HIST 100, 101, 105, 106, 114, 115
HUM 110, 111, 115, 116, 117, 120, 140, 155
NAKY 120, 121, 220
PHIL 110, 115, 117, 140, 141, 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, 123
THTR 110

HISTORY

Associate Degree for Transfer℠

I. HISTORY FOR TRANSFER (AA-T)

This degree program is useful for students preparing for careers in teaching, the law, government service, and research. 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.

The following is required for the AA-T in 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:
- 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
		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
		6

List B: Select one course from each group:

Group 1: Select one of the following diversity courses:
HIST 118, 119, 130, 131, 132, 133, 180, 181, or HIST 100 or 101 if not selected above　3

Group 2: Select one course related to history:
ANTH 120, 140
ART 100, 140, 141, 143, 144, 145
ENGL 122, 221, 222, 231, 232, 236, 238
HIST 122, 123, 124, 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　　　　　　　　　　3
　　　　　　　　　　　　　6

　　　Total Units for Major (18 units may
　　　　be double-counted with GE)　18
　　　Total Units for CSU GE Breadth
　　　　or IGETC CSU　39-37
　　　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 degree program is useful for students preparing for careers in teaching, the law, government service, and research. 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:
- Interpret and evaluate evidence by analyzing biases, patterns, trends, and relationships.
- Evaluate and apply subject matter to students' lived experiences and current events.
- Analyze how power and privilege operate in society, through the categories of race, class, gender, ethnicity, and sexuality.
- Develop and support arguments with evidence, including academic and organic (i.e. cultural, traditional, and experiential).
- Research and explore career options and/or obtain experience in a career field.

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
		12

List A: Select one of the following courses:

HIST/ETHN 107	History of Race & Ethnicity in the United States	3
HIST/ETHN 118	U.S. History: Chicano/Chicana Perspectives I	3
HIST/ETHN 119	U.S. History: Chicano/Chicana Perspectives II	3
HIST/ETHN 130	U.S. History and Cultures: Native American Perspectives I	3
HIST/ETHN 131	U.S. History and Cultures: Native American Perspectives II	3
HIST/ETHN 132	Kumeyaay History I: Precontact - 1845	3
HIST/ETHN 133	Kumeyaay History II: 1846 - Present	3
HIST/ETHN 180	U.S. History: Black Perspectives I	3
HIST/ETHN 181	U.S. History: Black Perspectives II	3
		3

List B: Select one of the following courses:

HIST 114	Comparative History of the Early Americas	3
HIST 115	Comparative History of the Modern Americas	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	The Modern Middle East	3
or any course from List A not selected		3
		3
		6

　　　Total Required　18
　　　Plus General Education
　　　　Requirements

CULTURE, PEOPLE & IDEAS

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:
- Interpret and evaluate evidence by analyzing biases, patterns, trends, and relationships.
- Evaluate and apply subject matter to students' lived experiences and current events.
- Analyze how power and privilege operate in society, through the categories of race, class, gender, ethnicity, and sexuality.
- Develop and support arguments with evidence, including academic and organic (i.e. cultural, traditional, and experiential).
- Research and explore career options and/or obtain experience in a career field.

Associate in Arts Degree Requirements:

Course	Title	Units
ANTH 150	Introduction to Cultural Resource Management	3
BIO 133	Ethnoecology	3
or		
BIO 134	Ethnobotany	3
BIO 135	Ethnobotany/Ethnoecology Lab	1
HIST 132	Kumeyaay History I: Precontact - 1845	3
HIST 133	Kumeyaay History II: 1846 - Present	3
HUM 116	Kumeyaay Arts and Culture	3
or		
HUM 117	Kumeyaay Arts and Culture II	3
NAKY 120	Kumeyaay I	4
NAKY 121	Kumeyaay II	4
		24

List A, Select One:

		Units
Course not taken above (BIO 133 or BIO 134 or HUM 116 or HUM 117)		3
NAKY 220	Kumeyaay III	4
POSC/ETHN 166	Introduction to Native American Politics and Policy	3
		3-4
	Total Required	27-28
	Plus General Education Requirements	

Certificate of Achievement
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.

The Certificate of Achievement in Kumeyaay Studies is designed to provide an understanding of Kumeyaay language, history, culture, heritage, and land management. Kumeyaay Studies is an interdisciplinary program, drawing from anthropology, biology, history, humanities, Kumeyaay language, and political science. Students will learn about the Kumeyaay Nation of San Diego's East County region through specialized, interactive coursework and on-site learning experiences.

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
- Interpret and evaluate evidence by analyzing biases, patterns, trends, and relationships.
- Evaluate and apply subject matter to students' lived experiences and current events.
- Analyze how power and privilege operate in society, through the categories of race, class, gender, ethnicity, and sexuality.
- Develop and support arguments with evidence, including academic and organic (i.e. cultural, traditional, and experiential).
- Research and explore career options and/or obtain experience in a career field.

Certificate Requirements:

Course	Title	Units
BIO 133*	Ethnoecology	3
or		
BIO 134	Ethnobotany	3
HIST 132	Kumeyaay History I: Precontact - 1845	3
HUM 116	Kumeyaay Arts and Culture	3
or		
HUM 117	Kumeyaay Arts and Culture II	3
NAKY 120	Kumeyaay I	4
		13

Select one of the following:

		Units
Course not taken above (BIO 133 or BIO 134 or HUM 116 or HUM 117)		
ANTH 150	Introduction to Cultural Resource Management	3
HIST 133	Kumeyaay History II: 1846 - Present	3
HUM 116	Kumeyaay Arts and Culture	3
NAKY 121	Kumeyaay II	4
NAKY 220	Kumeyaay III	4
POSC/ETHN 166	Introduction to Native American Politics and Policy	3
		3-4
	Total Required	16-17

Associate Degree for Transfer℠

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
		6

List A: Select one:

		Units
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
		3

List B: Select two:

		Units
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
		6

List C: Select one:

		Units
Any course from List A or B not used		3
PHIL 125	Critical Thinking	3
		3

	Units
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
ENGL 122, 201, 202, 214, 217, 221, 222, 231, 232, 270, 271
HIST 100, 101, 105, 106
HUM 110, 115, 116, 120, 140, 155
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

ENVIRONMENTAL & APPLIED TECHNOLOGY

AUTOMOTIVE TECHNOLOGY

I. AUTOMOTIVE TECHNOLOGY
The Automotive Technology degree has nine ASE core competencies for students without a sponsoring business. There is no work experience requirement. All laboratory courses are taught on campus using state of the art vehicles and equipment. The curriculum provides the necessary skills needed to join and advance in the automotive field. Students may further their education and skills by adding a specialization to this degree.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Demonstrate and practice standardized safety and hazardous waste handling practices.
• Accurately describe knowledge of applied science used in various automotive system operations and interrelationships.
• Diagnose and repair automotive-engineered system problems.
• Communicate effectively and professionally in a diverse setting that includes colleagues, clients, and supervisors.
• Comply with environmental health and safety regulations at the state and federal levels.

Associate in Science Degree Requirements

Course	Title	Units
AUTO 099	Introduction to Automotive Technology	3
AUTO 100L	Introduction to Automotive Technology Lab	1
AUTO 111	Engine Diagnosis and Repair	2
AUTO 111L	Engine Diagnosis and Repair Laboratory	1
AUTO 111T	Engine Diagnosis and Repair Assessment Test Out	0.5
AUTO 121	Automatic Transmission Theory and Operation	2
AUTO 121L	Automatic Transmission Theory and Operation Laboratory	1
AUTO 121T	Automatic Transmission Theory and Operation Assessment Test Out	0.5
AUTO 131	Manual Transmission and Transaxle Repair	1
AUTO 131L	Manual Transmission and Transaxle Repair Laboratory	1
AUTO 131T	Manual Transmission and Transaxle Assessment Test Out	0.5
AUTO 132	Differential and 4WD System Diagnosis and Repair	1
AUTO 132L	Differential and 4WD System Diagnosis and Repair Laboratory	1
AUTO 132T	Differential and 4WD System Diagnosis and Repair Assessment Test Out	0.5
AUTO 143	Steering and Suspension Diagnosis and Repair	1
AUTO 143L	Steering and Suspension Diagnosis and Repair Laboratory	1
AUTO 143T	Steering and Suspension Diagnosis and Repair Assessment Test Out	0.5
AUTO 144	Noise, Vibration, and Harshness Diagnosis	0.5
AUTO 144L	Noise, Vibration, and Harshness Diagnosis Laboratory	1
AUTO 144T	Noise, Vibration, and Harshness Diagnosis Assessment Test Out	0.5
AUTO 151	Brake System Diagnosis and Repair	2
AUTO 151L	Brake System Diagnosis and Repair Laboratory	1
AUTO 151T	Brake System Diagnosis and Repair Assessment Test Out	0.5
AUTO 161	Electrical Diagnosis and Repair	2
AUTO 161L	Electrical Diagnosis and Repair Laboratory	1
AUTO 161T	Electrical Diagnosis and Repair Assessment Test Out	0.5
AUTO 162	Electronics Diagnosis and Repair	2
AUTO 162L	Electronics Diagnosis and Repair Laboratory	1

AUTO 162T	Electronics Diagnosis and Repair Assessment Test Out	0.5
AUTO 171	Climate Control Systems Diagnosis and Repair	1
AUTO 171L	Climate Control Systems Diagnosis and Repair Laboratory	1
AUTO 171T	Climate Control Systems Diagnosis and Repair Assessment Test Out	0.5
AUTO 181	Engine Performance I Ignition and Fuel Systems	2
AUTO 181L	Engine Performance I Ignition and Fuel Systems Laboratory	1
AUTO 181T	Engine Performance I Ignition and Fuel Systems Assessment Test Out	0.5
AUTO 183	Engine Performance II Intake Exhaust and Emission Systems	2
AUTO 183L	Engine Performance II Intake Exhaust and Emission Systems Laboratory	1
AUTO 183T	Engine Performance II Intake Exhaust and Emission Systems Assessment Test Out	0.5
AUTO 194	Diesel Engine Performance and Diagnosis	2
AUTO 194L	Diesel Engine Performance and Diagnosis Laboratory	1
AUTO 194T	Diesel Engine Performance and Diagnosis Assessment Test Out	0.5
	Total Required	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.

II. AUTOMOTIVE TECHNOLOGY– AUTOMOTIVE SERVICE COUNCILS OF CALIFORNIA ASCCA
The Automotive Service Councils of California Association (ASCCA) sponsored degree program offers a unique, on-the-job training opportunity for students accepted by a sponsoring Automotive Repair Dealer (ARD) or affiliate. Students will be required to further their studies in an ASCCA-sponsoring repair facility as a paid apprentice, technician. 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 Certifications, and California Smog Inspector and Repair Technician licensing training. This is an excellent major for students wanting to own or operate an independent business.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
- Accurately describe and demonstrate knowledge of various automotive system operations and interrelationships at an ASCCA Automotive Repair Dealership or affiliate.
- Diagnose and repair automotive system problems by performing necessary actions at an ASCCA ARD or affiliate.
- Communicate effectively and professionally in a diverse setting that includes colleagues, clients, and supervisors.
- Comply with environmental health and safety regulations at the state and federal levels.

Associate in Science Degree Requirements:
Course   *Title*   *Units*
Required Core:

AUTO 099	Introduction to Automotive Technology	3
AUTO 100L	Introduction to Automotive Technology Laboratory	1
AUTO 143	Steering and Suspension Diagnosis and Repair	1
AUTO 143L	Steering and Suspension Diagnosis and Repair Laboratory	1
AUTO 143T	Steering and Suspension Diagnosis and Repair Assessment Test Out	0.5
AUTO 151	Brake System Diagnosis and Repair	2
AUTO 151L	Brake System Diagnosis and Repair Laboratory	1
AUTO 151T	Brake System Diagnosis and Repair Assessment Out	0.5
AUTO 161	Electrical Diagnosis and Repair	2
AUTO 161L	Electrical Diagnosis and Repair Laboratory	1
AUTO 161T	Electrical Diagnosis and Repair Assessment Test Out	0.5
AUTO 162	Electronics Diagnosis and Repair	2
AUTO 162L	Electronics Diagnosis and Repair Laboratory	1
AUTO 162T	Electronics Diagnosis and Repair Assessment Test Out	0.5
AUTO 183	Engine Performance II Intake Exhaust and Emission Systems	2
AUTO 183L	Engine Performance II Intake Exhaust and Emission Systems Laboratory	1
AUTO 183T	Engine Performance II Intake Exhaust and Emission Systems Assessment Test Out	0.5
AUTO 284	Level I Smog Inspector Training	2
AUTO 284L	Level I Smog Inspector Training Laboratory	1
AUTO 284T	Level I Smog Inspector Training Assessment Test Out	0.5
AUTO 285	Level II Smog Inspector Training	1
AUTO 285L	Level II Smog Inspector Training Laboratory	1
AUTO 285T	Level II Smog Inspector Training Assessment Test Out	0.5
AUTO 264	Hybrid and Electric Vehicle Operation and Diagnosis	1
AUTO 264L	Hybrid and Electric Vehicle Operation and Diagnosis Laboratory	1
AUTO 264T	Hybrid and Electric Vehicle Operation and Diagnosis Assessment Test Out	0.5
*AUTO 213	ASCCA Work Experience	12
	Total Required	41
	Plus General Education Requirements	

*Must be taken for a total of 12 units.

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

III. AUTOMOTIVE TECHNOLOGY CHASSIS SPECIALIST
Many businesses need technicians with very specific skills to diagnose and repair complex problems of brakes, suspension, and dynamic vehicle driving systems. This specialized degree includes antilock braking, electronic suspension, and alignment training. Successful students will

qualify to take the California Bureau of Automotive Licensing exams for Brake and Lamp licensing. Work experience is a requirement for this major, which ensures student competency and success. All students are required to complete a digital portfolio resume used for assessment and practicum. Students completing all courses and general education courses will receive and Associates of Science during Commencement. Students completing all automotive course requirements will receive a Certificate of Achievement during Commencement.

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
- Accurately describe and demonstrate knowledge of various automotive brake, steering, and suspension systems.
- Diagnose and repair automotive chassis systems by performing necessary actions.
- Communicate effectively and professionally in a diverse setting that includes colleagues, clients, and supervisors.
- Comply with environmental health and safety regulations at the state and federal levels.

Certificate Requirements:
Course   *Title*   *Units*

AUTO 131	Manual Transmission and Transaxle Repair	1
AUTO 131L	Manual Transmission and Transaxle Repair Laboratory	1
AUTO 131T	Manual Transmission and Transaxle Repair Assessment Test Out	0.5
AUTO 132	Differential and 4WD System Diagnosis and Repair	1
AUTO 132L	Differential and 4WD System Diagnosis and Repair Laboratory	1
AUTO 132T	Differential and 4WD System Diagnosis and Repair Assessment Test Out	0.5
AUTO 143	Steering and Suspension Diagnosis and Repair	1
AUTO 143L	Steering and Suspension Diagnosis and Repair Laboratory	1
AUTO 143T	Steering and Suspension Diagnosis and Repair Assessment Test Out	0.5
AUTO 144	Noise, Vibration, and Harshness Diagnosis	0.5
AUTO 144L	Noise, Vibration, and Harshness Diagnosis Laboratory	1
AUTO 144T	Noise, Vibration, and Harshness Diagnosis Assessment Test Out	0.5
AUTO 151	Brake System Diagnosis and Repair	2
AUTO 151L	Brake System Diagnosis and Repair Laboratory	1
AUTO 151T	Brake System Diagnosis and Repair Assessment Test Out	0.5
AUTO 153	Advanced Brake System Diagnosis and Repair	2
AUTO 153L	Advanced Brake System Diagnosis and Repair Laboratory	1
AUTO 153T	Advanced Brake System Diagnosis and Repair Assessment Test Out	0.5
AUTO 161	Electrical Diagnosis and Repair	2
AUTO 161L	Electrical Diagnosis and Repair Laboratory	1
AUTO 161T	Electrical Diagnosis and Repair Assessment Test Out	0.5
AUTO 162	Electronics Diagnosis and Repair	2
AUTO 162L	Electronics Diagnosis and Repair Laboratory	1

AUTO 162T Electronics Diagnosis and Repair
        Assessment Test Out   0.5
*AUTO 212 Automotive Technology Work
        Experience   12

        Total Required   35.5
        Plus General Education Requirements

*Must be taken for a total of 12 units.

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

IV. AUTOMOTIVE TECHNOLOGY DRIVETRAIN SPECIALIST
Many businesses need technicians with very specific skills to diagnose and repair complex problems of transmissions, transaxles, and differential vehicle power systems. This specialized program includes electronic controlled valve bodies, electronic differentials, four wheel drive, and all-wheel drive systems. Successful students will obtain a highly desired specialty set of skills. Work experience is a requirement for this major, which ensures student competency and success. All students are required to complete a digital portfolio resume used for assessment and practicum. Students completing all automotive course requirements will receive a Certificate of Achievement during Commencement.

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
• Accurately describe and demonstrate knowledge of various automotive automatic, manual, electric and electronic drivetrain systems.
• Diagnose and repair automotive power transmission systems by performing necessary actions.
• Communicate effectively and professionally in a diverse setting that includes colleagues, clients, and supervisors.
• Comply with environmental health and safety regulations at the state and federal levels.

Certificate of Achievement Requirements:

Course	Title	Units
AUTO 121	Automatic Transmission Theory and Operation	2
AUTO 121L	Automatic Transmission Theory and Operation Laboratory	1
AUTO 121T	Automatic Transmission Theory and Operation Assessment Test Out	0.5
AUTO 126	Automatic Transmission Diagnosis and Testing	2
AUTO 126L	Automatic Transmission Diagnosis and Testing Laboratory	1
AUTO 126T	Automatic Transmission Diagnosis and Testing Assessment Test Out	0.5
AUTO 131	Manual Transmission and Transaxle Repair	1
AUTO 131L	Manual Transmission and Transaxle Repair Laboratory	1
AUTO 131T	Manual Transmission and Transaxle Repair Assessment Test Out	0.5
AUTO 132	Differential and 4WD System Diagnosis and Repair	1
AUTO 132L	Differential and 4WD System Diagnosis and Repair Laboratory	1

AUTO 132T	Differential and 4WD System Diagnosis and Repair Assessment Test Out	0.5
AUTO 161	Electrical Diagnosis and Repair	2
AUTO 161L	Electrical Diagnosis and Repair Laboratory	1
AUTO 161T	Electrical Diagnosis and Repair Assessment Test Out	0.5
AUTO 162	Electronics Diagnosis and Repair	2
AUTO 162L	Electronics Diagnosis and Repair Laboratory	1
AUTO 162T	Electronics Diagnosis and Repair Assessment Test Out	0.5
AUTO 263	Advanced Electronics	1
AUTO 263L	Advanced Electronics Laboratory	1
AUTO 263T	Advanced Electronics Assessment Test Out	0.5
AUTO 264	Hybrid and Electric Vehicle Operation and Diagnosis	1
AUTO 264L	Hybrid and Electric Vehicle Operation and Diagnosis Laboratory	1
AUTO 264T	Hybrid and Electric Vehicle Operation and Diagnosis Assessment Test Out	0.5
*AUTO 212	Automotive Technology Work Experience	12
	Total Required	36

*Must be taken for a total of 12 units.

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

V. AUTOMOTIVE TECHNOLOGY ELECTRONICS AND ELECTRIC VEHICLE SPECIALIST
Many businesses need technicians with very specific skills to diagnose and repair complex problems in the Electric Vehicle and Hybrid Vehicle specialty. The high voltage battery and vehicle power systems require extremely fast computer multiplexing. This specialized program includes electronic controlled autonomous drive systems, electronic motor drive, four wheel motor drive, and hybrid drive systems. Successful students will obtain a highly desired specialty set of skills. Work experience is a requirement for this major, which ensures student competency and success. All students are required to complete a digital portfolio resume used for assessment and practicum. Students completing all automotive course requirements will receive a Certificate of Achievement during Commencement.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Accurately describe and demonstrate knowledge of various electrical, electronic, hybrid, and electric vehicle systems.
• Diagnose and repair advanced electronic automotive systems by performing necessary actions.
• Communicate effectively and professionally in a diverse setting that includes colleagues, clients, and supervisors.
• Comply with environmental health and safety regulations at the state and federal levels.

Certificate of Achievement Requirements:

Course	Title	Units
AUTO 121	Automatic Transmission Theory and Operation	2

AUTO 121L	Automatic Transmission Theory and Operation Laboratory	1
AUTO 121T	Automatic Transmission Theory and Operation Assessment Test Out	0.5
AUTO 132	Differential and 4WD System Diagnosis and Repair	1
AUTO 132L	Differential and 4WD System Diagnosis and Repair Laboratory	1
AUTO 132T	Differential and 4WD System Diagnosis and Repair Assessment Test Out	0.5
AUTO 143	Steering and Suspension Diagnosis and Repair	1
AUTO 143L	Steering and Suspension Diagnosis and Repair Laboratory	1
AUTO 143T	Steering and Suspension Diagnosis and Repair Assessment Test Out	0.5
AUTO 153	Advanced Brake System Diagnosis and Repair	2
AUTO 153L	Advanced Brake System Diagnosis and Repair Laboratory	1
AUTO 153T	Advanced Brake System Diagnosis and Repair Test Assessment Out	0.5
AUTO 161	Electrical Diagnosis and Repair	2
AUTO 161L	Electrical Diagnosis and Repair Laboratory	1
AUTO 161T	Electrical Diagnosis and Repair Assessment Test Out	0.5
AUTO 162	Electronics Diagnosis and Repair	2
AUTO 162L	Electronics Diagnosis and Repair Laboratory	1
AUTO 162T	Electronics Diagnosis and Repair Assessment Test Out	0.5
AUTO 171	Climate Control Systems Diagnosis and Repair	1
AUTO 171L	Climate Control Systems Diagnosis and Repair Laboratory	1
AUTO 171T	Climate Control Systems Diagnosis and Repair Assessment Test Out	0.5
AUTO 181	Engine Performance I Ignition and Fuel Systems	2
AUTO 181L	Engine Performance I Ignition and Fuel Systems Laboratory	1
AUTO 181T	Engine Performance I Ignition and Fuel Systems Assessment Test Out	0.5
AUTO 183	Engine Performance II Intake Exhaust and Emission Systems	2
AUTO 183L	Engine Performance II Intake Exhaust and Emission Systems Laboratory	1
AUTO 183T	Engine Performance II Intake Exhaust and Emission Systems Assessment Test Out	0.5
AUTO 263	Advanced Electronics	1
AUTO 263L	Advanced Electronics Laboratory	1
AUTO 263T	Advanced Electronics Assessment Test Out	0.5
AUTO 264	Hybrid and Electric Vehicle Operation and Diagnosis	1
AUTO 264L	Hybrid and Electric Vehicle Operation and Diagnosis Laboratory	1
AUTO 264T	Hybrid and Electric Vehicle Operation and Diagnosis Assessment Test Out	0.5
AUTO 283	Advanced Engine Performance	1
AUTO 283L	Advanced Engine Performance Laboratory	1
AUTO 283T	Advanced Engine Performance Assessment Test Out	0.5

<div style="writing-mode: vertical">**ENVIRONMENTAL & APPLIED TECHNOLOGY**</div>

*AUTO 212   Automotive Technology
Work Experience   12

Total Required   48

*Must be taken for a total of 12 units.

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

VI. AUTOMOTIVE TECHNOLOGY ENGINE PERFORMANCE SPECIALIST
Many businesses need technicians with very specific skills to repair emission system failures or complex problems relating to the fuel, ignition, and/or engine systems. This specialized degree includes hybrid and electric vehicle, and gasoline and diesel fuel systems training. Successful students will qualify to take the California Bureau of Automotive Licensing exams for Smog Inspector and Repair licensing. Work experience is a requirement for this major, which ensures student competency and success. All students are required to complete a digital portfolio resume used for assessment and practicum. Students completing all courses and general education courses will receive an Associates of Science during Commencement. Students completing all automotive course requirements will receive a Certificate of Achievement during Commencement.

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:
- Accurately describe and demonstrate knowledge of various automotive emission control systems.
- Diagnose and repair automotive emission control systems by performing necessary actions.
- Communicate effectively and professionally in a diverse setting that includes colleagues, clients, and supervisors.
- Comply with environmental health and safety regulations at the state and federal levels.

Associate in Science Degree Requirements:
Course	Title	Units
AUTO 111	Engine Diagnosis and Repair	2
AUTO 111L	Engine Diagnosis and Repair Laboratory	1
AUTO 111T	Engine Diagnosis and Repair Assessment Test Out	0.5
AUTO 161	Electrical Diagnosis and Repair	2
AUTO 161L	Electrical Diagnosis and Repair Laboratory	1
AUTO 161T	Electrical Diagnosis and Repair Assessment Test Out	0.5
AUTO 162	Electronics Diagnosis and Repair	2
AUTO 162L	Electronics Diagnosis and Repair Laboratory	1
AUTO 162T	Electronics Diagnosis and Repair Assessment Test Out	0.5
AUTO 181	Engine Performance I Ignition and Fuel Systems	2
AUTO 181L	Engine Performance I Ignition and Fuel Systems Laboratory	1
AUTO 181T	Engine Performance I Ignition and Fuel Systems Assessment Test Out	0.5
AUTO 183	Engine Performance II Intake Exhaust and Emission Systems	2

AUTO 183L	Engine Performance II Intake Exhaust and Emission Systems Laboratory	1
AUTO 183T	Engine Performance II Intake Exhaust and Emission Systems Assessment Test Out	0.5
AUTO 194	Diesel Engine Performance and Diagnosis	2
AUTO 194L	Diesel Engine Performance and Diagnosis Laboratory	1
AUTO 194T	Diesel Engine Performance and Diagnosis Assessment Test Out	0.5
AUTO 283	Advanced Engine Performance	1
AUTO 283L	Advanced Engine Performance Laboratory	1
AUTO 283T	Advanced Engine Performance Assessment Test Out	0.5
AUTO 284	Level I Smog Inspector Training	2
AUTO 284L	Level I Smog Inspector Training Laboratory	1
AUTO 284T	Level I Smog Inspector Training Assessment Test Out	0.5
AUTO 285	Level II Smog Inspector Training	1
AUTO 285L	Level II Smog Inspector Training Laboratory	1
AUTO 285T	Level II Smog Inspector Training Assessment Test Out	0.5
AUTO 263	Advanced Electronics	1
AUTO 263L	Advanced Electronics Laboratory	1
AUTO 263T	Advanced Electronics Assessment Test Out	0.5
AUTO 264	Hybrid and Electric Vehicle Operation and Diagnosis	1
AUTO 264L	Hybrid and Electric Vehicle Operation and Diagnosis Laboratory	1
AUTO 264T	Hybrid and Electric Vehicle Operation and Diagnosis Assessment Test Out	0.5
*AUTO 212	Automotive Technology Work Experience	12
	Total Required	46.5

*Must be taken for a total of 12 units.

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

VII. AUTOMOTIVE TECHNOLOGY ENGINE REPAIR SPECIALIST
Many businesses need technicians with very specific skills to diagnose and repair complex problems in the diesel and gasoline engine specialty. Engines have very complex electro mechanical controls, and use hydraulic oil systems. This specialized degree includes variable cam timing, in-vehicle engine repair, diagnosis strategies, and related systems. Successful students will obtain a highly desired specialty set of skills. Work experience is a requirement for this major, which ensures student competency and success. All students are required to complete a digital portfolio resume used for assessment and practicum. Students completing all courses and general education courses will receive and Associates of Science during Commencement. Students completing all automotive course requirements will receive a Certificate of Achievement during Commencement.

Program Learning Outcomes
Upon completion of this program, students will be able to:
- Accurately describe and demonstrate knowledge of various mechanical, electronic, and hydraulic, vehicle engine systems.
- Diagnose and repair advanced diesel and gasoline automotive engine systems by performing necessary actions.
- Communicate effectively and professionally in a diverse setting that includes colleagues, clients, and supervisors.
- Comply with environmental health and safety regulations at the state and federal levels.

Associate in Science Degree Requirements:
Course	Title	Units
AUTO 111	Engine Diagnosis and Repair	2
AUTO 111L	Engine Diagnosis and Repair Laboratory	1
AUTO 111T	Engine Diagnosis and Repair Assessment Test Out	0.5
AUTO 144	Noise Vibration and Harshness Diagnosis	0.5
AUTO 144L	Noise Vibration and Harshness Diagnosis Laboratory	1
AUTO 144T	Noise Vibration and Harshness Diagnosis Assessment Test Out	0.5
AUTO 161	Electrical Diagnosis and Repair	2
AUTO 161L	Electrical Diagnosis and Repair Laboratory	1
AUTO 161T	Electrical Diagnosis and Repair Assessment Test Out	0.5
AUTO 162	Electronics Diagnosis and Repair	2
AUTO 162L	Electronics Diagnosis and Repair Laboratory	1
AUTO 162T	Electronics Diagnosis and Repair Assessment Test Out	0.5
AUTO 171	Climate Control Systems Diagnosis and Repair	1
AUTO 171L	Climate Control Systems Diagnosis and Repair Laboratory	1
AUTO 171T	Climate Control Systems Diagnosis and Repair Assessment Test Out	0.5
AUTO 181	Engine Performance I Ignition and Fuel Systems	2
AUTO 181L	Engine Performance I Ignition and Fuel Systems Laboratory	1
AUTO 181T	Engine Performance I Ignition and Fuel Systems Assessment Test Out	0.5
AUTO 183	Engine Performance II Intake Exhaust and Emission Systems	2
AUTO 183L	Engine Performance II Intake Exhaust and Emission Systems Laboratory	1
AUTO 183T	Engine Performance II Intake Exhaust and Emission Systems Assessment Test Out	0.5
AUTO 194	Diesel Engine Performance and Diagnosis	2
AUTO 194L	Diesel Engine Performance and Diagnosis Laboratory	1
AUTO 194T	Diesel Engine Performance and Diagnosis Assessment Test Out	0.5
*AUTO 212	Automotive Technology Work Experience	12
	Total Required	37.5

*Must be taken for a total of 12 units.

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

VIII.   AUTOMOTIVE TECHNOLOGY– FORD ASSET

The Ford sponsored Automotive Student Service Education Training (ASSET) degree program offers a unique job training opportunity to students sponsored by a Ford dealership. The training includes all major content areas of Ford automotive systems. Students will demonstrate competency by efficiently performing prescribed tasks for Ford certification through laboratory or work experience assessments. 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 contact the department coordinator for more details.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
- Accurately describe and demonstrate knowledge of Ford automotive system operations and interrelationships.
- Diagnose and repair Ford automotive system problems by performing necessary actions.
- Communicate effectively and professionally in a diverse setting that includes colleagues, clients, and supervisors.
- Comply with environmental health and safety regulations at the state and federal levels.

Associate in Science Degree Requirements:

Course	Title	Units
AUTO 111	Engine Diagnosis and Repair	2
AUTO 111L	Engine Diagnosis and Repair Laboratory	1
AUTO 111T	Engine Diagnosis and Repair Assessment Test Out	0.5
AUTO 121	Automatic Transmission Theory and Operation	2
AUTO 121L	Automatic Transmission Theory and Operation Laboratory	1
AUTO 121T	Automatic Transmission Theory and Operation Assessment Test Out	0.5
AUTO 126	Automatic Transmission Diagnosis and Testing	2
AUTO 126L	Automatic Transmission Diagnosis and Testing Laboratory	1
AUTO 126T	Automatic Transmission Diagnosis and Testing Assessment Test Out	0.5
AUTO 132	Differential and 4WD System Diagnosis and Repair	1
AUTO 132L	Differential and 4WD System Diagnosis and Repair Laboratory	1
AUTO 132T	Differential and 4WD System Diagnosis and Repair Assessment Test Out	0.5
AUTO 143	Steering and Suspension Diagnosis and Repair	1
AUTO 143L	Steering and Suspension Diagnosis and Repair Laboratory	1
AUTO 143T	Steering and Suspension Diagnosis and Repair Assessment Test Out	0.5
AUTO 144	Noise Vibration and Harshness Diagnosis	0.5
AUTO 144L	Noise Vibration and Harshness Diagnosis Laboratory	1
AUTO 144T	Noise Vibration and Harshness Diagnosis Assessment Test Out	0.5
AUTO 151	Brake System Diagnosis and Repair	2
AUTO 151L	Brake System Diagnosis and Repair Laboratory	1
AUTO 151T	Brake System Diagnosis and Repair Assessment Test Out	0.5
AUTO 153	Advanced Brake System Diagnosis and Repair	2
AUTO 153L	Advanced Brake System Diagnosis and Repair Laboratory	1
AUTO 153T	Advanced Brake System Diagnosis and Repair Assessment Test Out	0.5
AUTO 161	Electrical Diagnosis and Repair	2
AUTO 161L	Electrical Diagnosis and Repair Laboratory	1
AUTO 161T	Electrical Diagnosis and Repair Assessment Test Out	0.5
AUTO 162	Electronics Diagnosis and Repair	2
AUTO 162L	Electronics Diagnosis and Repair Laboratory	1
AUTO 162T	Electronics Diagnosis and Repair Assessment Test Out	0.5
AUTO 171	Climate Control Systems Diagnosis and Repair	1
AUTO 171L	Climate Control Systems Diagnosis and Repair Laboratory	1
AUTO 171T	Climate Control Systems Diagnosis and Repair Assessment Test Out	0.5
AUTO 181	Engine Performance I Ignition and Fuel Systems	2
AUTO 181L	Engine Performance I Ignition and Fuel Systems Laboratory	1
AUTO 181T	Engine Performance I Ignition and Fuel Systems Assessment Test Out	0.5
AUTO 183	Engine Performance II Intake Exhaust and Emission Systems	2
AUTO 183L	Engine Performance II Intake Exhaust and Emission Systems Laboratory	1
AUTO 183T	Engine Performance II Intake Exhaust and Emission Systems Assessment Test Out	0.5
*AUTO 215	Ford ASSET Work Experience	12
	Total Required	53
	Plus General Education Requirements	

*Must be taken for a total of 12 units.

IX. AUTOMOTIVE TECHNOLOGY – GENERAL MOTORS ASEP

The General Motors sponsored Automotive Service Education Program (ASEP) degree program offers a unique job training opportunity to those students who are accepted. Training includes all systems of GM automobiles. In addition, students will be required to further their studies in a sponsoring dealership as a paid GM student technician. 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 or coordinator.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
- Accurately describe and demonstrate knowledge of General Motors automotive system operations and interrelationships.
- Diagnose and repair General Motors automotive system problems by performing necessary actions.
- Communicate effectively and professionally in a diverse setting that includes colleagues, clients, and supervisors.
- Comply with environmental health and safety regulations at the state and federal levels.

Associate in Science Degree Requirements:

Course	Title	Units
AUTO 111	Engine Diagnosis and Repair	2
AUTO 111L	Engine Diagnosis and Repair Laboratory	1
AUTO 111T	Engine Diagnosis and Repair Assessment Test Out	0.5
AUTO 121	Automatic Transmission Theory and Operation	2
AUTO 121L	Automatic Transmission Theory and Operation Laboratory	1
AUTO 121T	Automatic Transmission Theory and Operation Assessment Test Out	0.5
AUTO 126	Automatic Transmission Diagnosis and Testing	2
AUTO 126L	Automatic Transmission Diagnosis and Testing Laboratory	1
AUTO 126T	Automatic Transmission Diagnosis and Testing Assessment Test Out	0.5
AUTO 132	Differential and 4WD System Diagnosis and Repair	1
AUTO 132L	Differential and 4WD System Diagnosis and Repair Laboratory	1
AUTO 132T	Differential and 4WD System Diagnosis and Repair Assessment Test Out	0.5
AUTO 143	Steering and Suspension Diagnosis and Repair	1
AUTO 143L	Steering and Suspension Diagnosis and Repair Laboratory	1
AUTO 143T	Steering and Suspension Diagnosis and Repair Assessment Test Out	0.5
AUTO 144	Noise Vibration and Harshness Diagnosis	0.5
AUTO 144L	Noise Vibration and Harshness Diagnosis Laboratory	1
AUTO 144T	Noise Vibration and Harshness Diagnosis Assessment Test Out	0.5
AUTO 151	Brake System Diagnosis and Repair	2
AUTO 151L	Brake System Diagnosis and Repair Laboratory	1
AUTO 151T	Brake System Diagnosis and Repair Assessment Test Out	0.5
AUTO 153	Advanced Brake System Diagnosis and Repair	2
AUTO 153L	Advanced Brake System Diagnosis and Repair Laboratory	1
AUTO 153T	Advanced Brake System Diagnosis and Repair Assessment Test Out	0.5
AUTO 161	Electrical Diagnosis and Repair	2
AUTO 161L	Electrical Diagnosis and Repair Laboratory	1
AUTO 161T	Electrical Diagnosis and Repair Assessment Test Out	0.5
AUTO 162	Electronics Diagnosis and Repair	2
AUTO 162L	Electronics Diagnosis and Repair Laboratory	1
AUTO 162T	Electronics Diagnosis and Repair Assessment Test Out	0.5
AUTO 171	Climate Control Systems Diagnosis and Repair	1
AUTO 171L	Climate Control Systems Diagnosis and Repair Laboratory	1
AUTO 171T	Climate Control Systems Diagnosis and Repair Assessment Test Out	0.5
AUTO 181	Engine Performance I Ignition and Fuel Systems	2
AUTO 181L	Engine Performance I Ignition and Fuel Systems Laboratory	1
AUTO 181T	Engine Performance I Ignition and Fuel Systems Assessment Test Out	0.5
AUTO 183	Engine Performance II Intake Exhaust and Emission Systems	2
AUTO 183L	Engine Performance II Intake Exhaust and Emission Systems Laboratory	1
AUTO 183T	Engine Performance II Intake Exhaust and Emission Systems Assessment Test Out	0.5
*AUTO 214	General Motors ASEP Work Experience	12
	Total Required	53

*Must be taken for a total of 12 units.

Certificate of Achievement

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

X. AUTOMOTIVE TECHNOLOGY SERVICE MANAGEMENT

Many businesses need technicians with very specific skills to communicate with customers, management, and technicians about complex problems in all vehicle specialties. This specialized program emphasizes effective and equitable communication skills, and additionally includes specific compliance standards training and business management training unique to the automotive industry. Successful students will obtain highly desired skills in professional communication and industry compliance. Work experience is a requirement for this major, which ensures student competency and success. All students are required to complete a digital portfolio resume used for assessment and practicum. Students completing all courses and general education courses will receive and Associates of Science during Commencement. Students completing all automotive course requirements will receive a Certificate of Achievement during Commencement.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:
- Accurately describe and demonstrate knowledge of various automotive systems.
- Apply knowledge of the repair systems process by describing necessary actions by order of priority to a customer, manager, or technician.
- Communicate effectively and professionally in a diverse setting that includes colleagues, clients, and supervisors.
- Comply with environmental health and safety regulations at the state and federal levels.

Associate in Science Degree Requirements:

Course	Title	Units
Required Core:		
AUTO 111	Engine Diagnosis and Repair	2
AUTO 121	Automatic Transmission Theory and Operation	2
AUTO 143	Steering and Suspension Diagnosis and Repair	1
AUTO 144	Noise Vibration and Harshness Diagnosis	0.5
AUTO 151	Brake System Diagnosis and Repair	2
AUTO 161	Electrical Diagnosis and Repair	2
AUTO 162	Electronics Diagnosis and Repair	2
AUTO 171	Climate Control Systems Diagnosis and Repair	1
AUTO 181	Engine Performance I Ignition and Fuel Systems	2
AUTO 183	Engine Performance II Intake Exhaust and Emission Systems	2
AUTO 194	Diesel Engine Performance and Diagnosis	2
AUTO 210	Automotive Service Management	3
AUTO 211	Automotive Customer Service	2
*AUTO 212	Automotive Technology Work Experience	12
	Total Required	35.5
	Plus General Education Requirements	

*Must be taken for a total of 12 units.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Automotive Technology Service Management. 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	Solid Modeling Design	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	Solid Modeling Design (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:

Course	Title	Units
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:

Course	Title	Units
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
		25

Select two of the following:

Course	Title	Units
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
		5-6

Select two of the following:

Course	Title	Units
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
		4-7
	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
		30

Select at least six units from the following:

Course	Title	Units
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
		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 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
		30

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
		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 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
		30

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
		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 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	12

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	9

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

ENVIRONMENTAL & APPLIED TECHNOLOGY

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 140	CSIS 180
CIS 190	CSIS 112
CIS 191	CSIS 113
CIS 211	CSIS 132
CIS 213	CSIS 133
CIS 215	CSIS 135
CIS 267	CSIS 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
		13

Area of Emphasis:

Course	Title	Units
CIS 190	Windows Operating System	3
or		
CIS 191	Linux Operating System	3
CIS 201	Cisco Academy – Introduction to Networking	3
CIS 202	Cisco Academy – Routing, Switching, and Wireless Essentials	3
CIS 203	Cisco Academy – Enterprise Networking, Security, and Automation	3
CIS 209	Cisco CyberOps	3
or		
CIS 263	Fundamentals of Network Security	3
		15

Select three of the following:

Course	Title	Units
CIS 101	Fundamentals of Information Technology	1.5
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
CIS 271	Palo Alto Networks - Certified Network Security Administrator (PCNSA)	3
CIS 272	Palo Alto Networks Firewall Configuration, Management, and Thread Prevention	3
		6.5-10

| | Total Required Including Core Classes | 34.5-38 |

Plus General Education Requirements

ENVIRONMENTAL & APPLIED TECHNOLOGY

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
		13

Area of Emphasis:

Course	Title	Units
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
		15

Select four of the following:

Course	Title	Units
CIS 140	Databases	3
CIS 162	Technical Diagramming Using Microsoft Visio	2
CIS 170	Internet of Things (IoT) - Connecting Things	3
CIS 172	Internet of Things- Security	3
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
		10-12
	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
		22

Select one of the following:

Course	Title	Units
CIS 225	Web Development Capstone	3
CIS 267	Directed Work Experience in CIS	1-4
		1-4

Select two of the following:

Course	Title	Units
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
		6-8
	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 CCNA Security	3
	Total Required	15

II. CISCO NETWORK PROFESSIONAL

Program Learning Outcomes

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

- Configure, diagnose, and troubleshoot complex enterprise router and switch networking solutions including: network performance; advanced routing protocols; VPNs; 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 CCNA Security	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

VII. 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

Associate Degree for Transfer℠

I. COMPUTER SCIENCE 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 Computer Science. The coursework provides a strong foundation in programming methodology, programming skills, and computer organization.

Most careers in computer science require a bachelor's degree, and some require a graduate-level degree. Computer science careers include software engineering, computer engineering, computer systems analysis, systems programming, mobile application development, artificial intelligence, robotics, and simulation. Computing technology now is used in most fields. Because of this, a wide range of jobs are open to people trained in Computer Science. Employment opportunities are expected to remain very strong.

A total of 33 units are required to fulfill the major portion of this degree. Students must also complete the Intersegmental General Education Transfer Curriculum (IGETC) for CSU admission requirements (see the "General Education Requirements and Transfer Information" section of the catalog). Students should speak with a counselor to verify that the requirements for this degree have been met. In addition, students planning to transfer to San Diego State University should consult with a counselor.

The following is required for the AS-T in Computer 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:

• Define and apply current Software Engineering design patterns, algorithms, and data structures to produce efficient, well-engineered software applications.

• Apply problem-solving skills and the knowledge of computer science to solve real-world problems.

• Define and demonstrate the concept of object oriented programming and object oriented design.

Associate in Science Degree Requirements:

Core Curriculum:

Course	Title	Units
BIO 230	Principles of Cellular, Molecular and Evolutionary Biology	4
CS 165	Assembly Language and Machine Architecture	4
CS 182	Introduction to Java Programming	4
CS 240	Discrete Structures	3
CS 281	Intermediate C++ Programming and Fundamental Data Structures	4
or		
CS 282	Intermediate Java Programming and Fundamental Data Structures	4
MATH 180	Analytic Geometry and Calculus I	5
MATH 280	Analytic Geometry and Calculus II	4
PHYC 190	Mechanics and Heat	5
	Total Required	33
	Double-Counted Units	10
	General Education Requirements (IGETC only)	37
	Total Units Required for Degree	60

II. 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	Solid Modeling Design	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 Electricity and 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 & APPLIED TECHNOLOGY

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 plantscaping, 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 150	Landscape Architecture I	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	2
OH 275	Diagnosing Horticultural Problems	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
		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
		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
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
		3

Select nine units from the following:

OH 130	Plant Pest Control	3
OH 150	Landscape Architecture I	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 174	Turf and Ground Cover Management	3
OH/CADD 200**	Introduction to Computer-Aided Landscape Design	3
OH 225	Landscape Contracting	3
OH 238	Irrigation System Design	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 ARCHITECTURE

The Landscape Architecture major provides students with a multi-disciplined, project-based approach to landscape architecture for residential, public, and commercial sites. The curriculum covers the current trends in design and technologies in construction of the projects. Course work is designed to provide employable technical skill training in the field and provides foundation for students who plan to transfer to four-year degree programs in Landscape Architecture. Students earning an associate degree in Landscape Architecture are eligible to take the Landscape Architecture Registration Exam to achieve state licensure after completing requisite apprenticeship. Graduates may be 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:

- Use hand-drawn and computer-generated graphics that are industry standards to produce accurate landscape plans that reflect sustainable, functional and aesthetic principles.
- Communicate design ideas with clients and contractors 1) verbally, 2) with hand drawings, and 3) computer-generated drawings.
- Integrate plants as well as construction methods and materials indicative of the Southern California region.

Associate in Science Degree Requirements:

Course	Title	Units
CADD 120	Introduction to Computer-Aided Drafting and Design	3
OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 120	Fundamentals of Ornamental Horticulture	3
OH 150	Landscape Architecture I	3
OH 151	Landscape Architecture II	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 220	Landscape Construction: Concrete and Masonry	3
OH 235	Principles of Landscape Irrigation	4
OH 290*	Cooperative Work Experience Education	3
		27

Select one of the following:

Course	Title	Units
ART 140	Survey of Western Art I: Prehistory through Middle Ages	3
ART 141	Survey of Western Art II: Renaisssance through Modern	3
ART 144	Architecture of the 20th Century	3
		3

Select four units (minimum) from the following:

Course	Title	Units
OH 180	Plant Materials: Annuals and Perennials	3
OH/CADD 201	Advanced Computer-Aided Landscape Design	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 Landscape Principles and Practices	2
OH 263	Urban Forestry	1
		4-6
	Total Required	34-36
	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 Architecture. 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:

Course	Title	Units
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:

Course	Title	Units
OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 105	Edibles in Urban Landscapes	1.5
OH 150	Landscape Architecture I	3
OH 151	Landscape Architecture II	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	2
OH 260	Arboriculture	3
OH 275	Diagnosing Horticultural Problems#	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:

Course	Title	Units
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:

Course	Title	Units
BIO 122	The Secret Life of Plants	4
OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 114	Floral Design I	3
OH 150	Landscape Architecture I	3
OH 240	Greenhouse Plant Production	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	2
OH 263	Urban Forestry	1
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
		3

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 150	Landscape Architecture I	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
		8
	Total Required	31-31.5
	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 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 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
		6

Select one of the following:

OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 180	Plant Materials: Annuals and Perennials	3
		3

Select one of the following:

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

Select at least three units from the following:

OH 114	Floral Design I	3
OH 121	Plant Propagation	3
OH 150	Landscape Architecture I	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
		3
	Total Required	15

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

SURVEYING

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

Program Learning Outcomes

Upon successful completion of this program, students will be able to:
- Measure angles and distances using electronic total stations and distance meters.
- Compile field data, adjusting for error from horizontal and vertical traverses.
- Create typical drawing title blocks accepted by local municipalities such as the City of San Diego.
- 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 **or**	Engineering Graphics	3
ENGR 100	Introduction to Engineering and Design	4
CADD 120	Introduction to Computer-Aided Drafting and Design	3
SURV/CADD 127	Survey Drafting Technology	3
MATH 170	Analytic Trigonometry	3
PHYC 110	Introductory Physics	4
SURV/ENGR 218	Plane Surveying	4
SURV 220	Boundary Control and Legal Principles	3
SURV 240	Advanced Surveying	4
	Total Required	27-28
	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
	Total Required	28-31
	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. Choose a minimum of 18 units from one Area of Emphasis:
- Lifelong Health, Well-Being and Self-Development

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

Nutrition
NUTR 155, 158, 255

Self-Development
COUN 110, 120, 130, 140, 150

KINESIOLOGY

Associate Degree for Transfer℠

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.

HEALTH SCIENCE

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

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):

Course	Title	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

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 130	Arabic Literature and Culture	3
ARBC 145	Arabic Civilizations	3
ARBC 122	Arabic for the Arabic Speaker I	5
or		
ARBC 220	Arabic III	5
ARBC/BOT 180	Basic Computer Skills for Arabic Learners	1
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	33
	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 Transfer℠

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
		12

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
		6
	Total Required	18
	Plus General Education Requirements	

ENGLISH

Associate Degree for Transfer℠

I. ENGLISH FOR TRANSFER (AA-T)

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

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

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

Program Learning Outcomes

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

Associate in Arts Degree Requirements:
Core Curriculum:

Course	Title	Units
ENGL 122	Introduction to Literature	3
ENGL 124	Advanced Composition: Critical Reasoning and Writing	3
		6

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
		6

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
		3

List C: Select one of the following:

ENGL 236	Chicana/o 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
		3-5

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
ENGL 200	Cooperative Work Experience in English	1-4
		13-16

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	Chicana/o 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
		3
	Total Required	25-28
	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. Choose a minimum of 18 units from one Area of Emphasis:
- Communication and Language Arts

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 three units in Communication and three units in Language Arts. The remaining twelve 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
ENGL 122, 124, 126, 201, 202, 217, 221, 222, 231, 232, 236, 238, 270, 271
ETHN 236, 238
NAKY 120, 121, 220
SPAN 120, 121, 220, 221, 250, 251

SPANISH

Associate Degree for Transfer℠

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
		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
		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*
ENGL 122, 124, 126, 201, 202, 214, 221, 222, 231, 232, 270, 271
NAKY 120, 121, 220
SPAN 120, 121, 220, 221, 250, 251

* Course not UC transferable

STEM

BIOLOGICAL SCIENCES

Associate Degree for Transfer℠

I. BIOLOGY FOR TRANSFER (AS-T)

The Associate in Science in Biology for Transfer presents the diverse, dynamic study of life through a required core of biology and supporting courses. This degree is specifically designed to prepare students for transfer to a California State University, where a baccalaureate degree may be earned in Biological Sciences or a closely related field.

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

1. 60 semester or 90 quarter CSU-transferable units;
2. The Intersegmental General Education Transfer Curriculum (IGETC) for Science, Technology, Engineering and Mathematics (STEM) pattern for the CSU;*
3. Minimum of 18 semester or 27 quarter units in the major or area of emphasis;
4. Minimum grade point average (GPA) of 2.0;
5. Grade of "C" or better in all courses required for the major or area of emphasis.

Program Learning Outcomes

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

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

Associate in Science for Transfer Degree Requirements:

Course	Title	Units
Required Core:		
BIO 230	Principles of Cellular, Molecular and Evolutionary Biology	4
BIO 240	Principles of Ecology, Evolution and Organismal Biology	5
		9
List A:		
CHEM 141	General Chemistry I	5
CHEM 142	General Chemistry II	5
MATH 180	Analytic Geometry and Calculus I	5
Choose one sequence:		
PHYC 130	Fundamentals of Physics	4
PHYC 131	Fundamentals of Physics	4
or		
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
List B:		
MATH 160	Elementary Statistics	4
	Total Required	36-38
	Double-Counted Units	10
	General Education Requirements (IGETC-CSU for STEM)*	31
	Electives	1-3
	Total Degree Units	60

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

II. BIOLOGICAL SCIENCES

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

Program Learning Outcomes

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

CAREER OPPORTUNITIES
* Aquatic Biologist
* Athletic Trainer
* Biologist
* Biochemical Engineer
  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	

III. MARINE BIOLOGY

The Marine Biology degree is designed to provide a two-year transfer program leading to a B.S. degree in Marine Biology with emphasis on the diversity of organisms and the biological and physical processes that affect these organisms, their populations and their coastal and oceanic ecosystems. This major requires a strong foundation in natural sciences that is provided in this two-year transfer degree that can lead to UC or CSU Marine Biology programs.

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 Internet 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
CHEM 141	General Chemistry I	5
CHEM 142	General Chemistry II	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

	and	
PHYC 200	Electricity and Magnetism	5
	and	
PHYC 210	Wave Motion and Modern Physics	5
	or	
PHYC 130	Fundamentals of Physics	4
	and	
PHYC 131	Fundamentals of Physics	4
	Total Required	40-47
	Plus General Education Requirements	

*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.

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:
1. Students pursuing an emphasis in biochemistry should also take the following courses: BIO 230, 240.
2. 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	

STEM

ENVIRONMENTAL SCIENCE FOR TRANSFER (AS-T)

The AS-T in Environmental Science for Transfer is an inter-disciplinary program that presents the student with a rigorous and broad foundation in the sciences most relevant to environmental issues including biology, chemistry, physics, earth science, statistics and mathematics. The AS-T in Environmental Sciences is specifically designed to prepare students for transfer to California State University, where a baccalaureate degree may be earned in Environmental Science or a closely related field.

The following is required for the AS-T in Environmental 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:
- Ability to utilize knowledge attained from a broad foundation in the sciences to think critically about human impact on the environment and the environmental issues confronting Society.
- Describe the relationship between life forms and their impact on environment and ecosystems.
- Collect, organize, analyze, interpret and present quantitative and qualitative date and incorporate them into the broader context of scientific knowledge.
- Effectively apply current technology and scientific methodologies for problem solving.
- Find, select evaluate and utilize various types of scientific information including primary research articles, mass media sources and Internet information.
- Communicate effectively in written and oral formats.

CAREER OPPORTUNITIES

Environmental Scientist
Environmental Technician
Ecologist
Chemical Technician
Water Chemistry Technician
Geologist
Geographer
Water Wastewater Technician
Environmental Health and Safety Technician
Technical Writer
Waste Management Technician

Associate in Science Degree Requirements:

Core Curriculum:

Course	Title	Units
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
or		
BIO 230	Principles of Cellular, Molecular and Evolutionary Biology	4
CHEM 141	General Chemistry I	5
CHEM 142	General Chemistry II	5
		14

List A:

BIO 112	Contemporary Issues in Environmental Resources	3
GEOL 110	Planet Earth	3
GEOL 111	Planet Earth Laboratory	1
or		
GEOG 120	Physical Geography: Earth Systems	3
GEOG 121	Physical Geography: Earth Systems Laboratory	1
MATH 160	Elementary Statistics	4
MATH 180	Analytic Geometry and Calculus I	5
or		
MATH 178	Calculus for Business, Social and Behavioral Sciences	4
		15-16

List B:

ECON 121	Principles of Microeconomics	3
PHYC 130	Fundamental of Physics	4
PHYC 131	Fundamentals of Physics	4
		11

	Total Units for the major	40-41
	Double-Counted Units	13
	General Education Requirements (IGETC-CSU for STEM)	31-33
	Total Units Required for Degree	60

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. Choose a minimum of 18 units from one Area of Emphasis:
- Science and Mathematics

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 three units in Science and three units in Mathematics (limitation of one statistics course). The remaining twelve 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, 201, 202, 203, 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

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
		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	Introduction to C++ Programming	3
ENGR 120	Engineering Computer Applications	3
MATH 160	Elementary Statistics	4
MATH 245	Discrete Math	3
PHYC 201	Mechanics and Waves	5
Any course from list A not selected:		3
		3-5
	Total Required	19-21
	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 201, 202, 203. 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 Transfer℠

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 California State University General Education (CSU GE) Breadth pattern OR the Intersegmental General Education Transfer Curriculum (IGETC-CSU) 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:
• 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.

STEM

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 Transfer℠

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
		9

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 Transfer℠

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	3
		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	3
		3

List B: Select three of the following:

ART 121	Painting I	3
ART 125	Drawing II	3
ART 135	Watercolor I	3
ART 148	Applied Design and Crafts	3
ART 230	Figure Drawing I	3
		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
		39

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
		3
	Total Required	42
	Plus General Education Requirements	

Recommended Electives: ART 135, BUS 110, GD 230

IV. ART–DRAWING AND PAINTING

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

Program Learning Outcomes

Upon successful completion of this program, students will be able to:
- Use the vocabulary of the visual arts to express their observations as they perceive and respond to works of art, objects in nature, events and the environment.
- Apply artistic processes and skills, using a variety of media to communicate meaning and intent in original works of art.
- Analyze 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
		24

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
		6
	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
		27

Select three of the following:

Course	Title	Units
ART 230	Figure Drawing I	3
GD 115	Introduction to Multimedia	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
		7-10
	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	15

II. WEB GRAPHICS

Program Learning Outcomes

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

Certificate Requirements:

Course	Title	Units
CIS 211	Web Development I	3
GD 110	Graphic Design Principles	3
GD 210	Professional Digital Photography I	3
GD 217	Web Graphics	3
GD 222	Web Animation	3
	Total Required	15

MUSIC

Associate Degree for Transfer℠

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:

Course	Title	Units
MUS 152	Concert Band	1
MUS 153	Concert Band	1
MUS 252	Concert Band	1
MUS 253	Concert Band	1
MUS 158	Chorus	1
MUS 159	Chorus	1
MUS 258	Chorus	1
MUS 259	Chorus	1
	Total Units for Major	22
	Total Units for IGETC-CSU	37
	Total Transferable Elective Units	1
	Total Units for Degree	60

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

II. MUSIC EDUCATION

This degree program offers lower division preparation for students who want to pursue a bachelor's degree in music education and a California teaching credential in music. The primary emphasis is to prepare students for transfer to four-year music education programs.

Program Learning Outcomes

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

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

* Bachelor Degree or higher required

Associate in Arts Degree Requirements:

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
		36

Select four of the following:

Course	Title	Units
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
		4
	Total Required	40
	Plus General Education Requirements	

VISUAL & PERFORMING ARTS • EXPLORATORY

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
		25

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
		6

Select one of the following:

BUS 120	Financial Accounting	4
BUS 125	Business Law: Legal Environment of Business	3
		3-4

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
		2-4
	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).