

Associate Degree Programs and Certificates

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).

Program	Associate Degree	Certificate of Achievement	Certificate of Specialization	Program	Associate Degree	Certificate of Achievement	Certificate of Specialization
ACCOUNTING	◆	◆		ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT			
Bookkeeping		◆		Environmental Management	◆		
ART				Environmental Technician		◆	
Drawing and Painting	◆			Occupational Safety and Health (OSH) Management	◆		
Graphic Design (Transfer)	◆			Occupational Safety and Health (OSH) Technician		◆	
AUTOMOTIVE TECHNOLOGY	◆	◆		EXERCISE SCIENCE	◆		
Advanced Engine Performance and Emissions		◆		Recreational Leadership-School-Based Programs			*
ASEP	◆			GENERAL STUDIES			
ASSET	◆			Business & Technology	◆		
Brakes and Front-End		◆		Communication & Language Arts	◆		
Engine Performance and Drive Train		◆		Humanities & Fine Arts	◆		
BIOLOGICAL SCIENCES	◆			Lifelong Health & Well-Being	◆		
BUSINESS				Science & Mathematics	◆		
Business Administration	◆	◆		Social & Behavioral Sciences	◆		
Business Data Management	◆	◆		GRAPHIC DESIGN	◆	◆	
Business-General	◆	◆		Digital Photography			*
Database Administration			*	Web Graphics			*
BUSINESS OFFICE TECHNOLOGY	◆	◆		HISTORY	◆		
Administrative Assistant	◆	◆		INTERSEGMENTAL GENERAL EDUCATION TRANSFER CURRICULUM (CSU)		◆	
Executive Assistant	◆	◆		INTERSEGMENTAL GENERAL EDUCATION TRANSFER CURRICULUM (UC)		◆	
Office Assistant Level I			*	KUMEYAAY STUDIES			*
Office Assistant Level II			*	MANAGEMENT	◆	◆	
Office Professional			*	MATHEMATICS	◆	◆	
Office Software Specialist Level I			*	MUSIC			
Office Software Specialist Level II			*	Music Education	◆		
CADD TECHNOLOGY				Music Industry Studies	◆		
Building Design Industry	◆	◆		ORNAMENTAL HORTICULTURE			
Manufacturing Industry	◆	◆		Arboriculture	◆	◆	
CHEMISTRY	◆			Floral Design	◆	◆	
CHILD DEVELOPMENT				Golf Course and Sports Turf Management	◆	◆	
Infants and Toddlers	◆	◆		Irrigation Technology	◆	◆	
Preschool Children	◆	◆		Landscape Design	◆	◆	
School Age Child Care	◆	◆		Landscape Technology	◆	◆	
Recreational Leadership-Outdoor Programs			*	Nursery Technology	◆	◆	
COMMUNICATION	◆			Sustainable Urban Landscapes	◆	◆	
COMMUNICATION STUDIES FOR TRANSFER (AA-T)	◆			PARALEGAL STUDIES	◆		
COMPUTATIONAL SCIENCE	◆	◆		PHYSICAL SCIENCE	◆		
COMPUTER AND INFORMATION SCIENCE				PHYSICS	◆		
Computer Network Administration	◆	◆		PSYCHOLOGY FOR TRANSFER (AA-T)	◆		
Telecommunications Networking Technology	◆			REAL ESTATE	◆	◆	
Web Development	◆	◆		Escrow		◆	
Cisco Systems			*	SOCIAL WORK	◆		
Computer Programming			*	SOCIOLOGY FOR TRANSFER (AA-T)	◆		
Network Servicing Technology			*	SPANISH	◆	◆	
Operating Systems			*	SURVEYING	◆	◆	
Telecommunications Servicing Technology			*	UNIVERSITY STUDIES			
Web Design			*	Business & Economics	◆		
Web Programming			*	Communication & Language Arts	◆		
Web Server Management			*	Humanities & Fine Arts	◆		
CSU GENERAL EDUCATION BREADTH	◆			Science & Mathematics	◆		
ELEMENTARY EDUCATION	◆			Social & Behavioral Sciences	◆		
ENGINEERING				WATER/WASTEWATER TECHNOLOGY			
Civil Engineering	◆	◆		Cross Connection Control Systems	◆	◆	
Electrical & Computer Engineering	◆	◆		Water Distribution Systems	◆	◆	
Mechanical & Aerospace Engineering	◆	◆		Water Treatment Plant Operator	◆	◆	
Mechatronics			*	Wastewater Collection Systems	◆	◆	
ENGLISH	◆	◆		Wastewater Treatment Operator	◆	◆	
ENTREPRENEURSHIP-SMALL BUSINESS MANAGEMENT	◆	◆					

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.*

CAREER OPPORTUNITIES

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

Associate in Science Degree Requirements:

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

Certificate of Achievement

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

BOOKKEEPING CERTIFICATE

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

Certificate Requirements:

Course	Title	Units
BOT 123-125	Comprehensive Excel Levels I-III	3
BUS 109	Elementary Accounting	3
or		
BUS 120	Financial Accounting	4
BUS 121	Managerial Accounting	4
BUS 128	Business Communication	3
BUS 129	Payroll Accounting and Business Taxes	2
BUS 176	Computerized Accounting Applications	2
CIS 105	Introduction to Computing	3
	Total Required	20-21

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

Certificate of Achievement

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

ART

I. 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.

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	History of Western Art I: Prehistoric to 1250 A.D.	3
ART 141	History of Western Art II: Circa 1250 A.D. to Present Time	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 History: 1945-Present	3
ART 220	Painting II	3
ART 231	Figure Drawing II	3
GD 126ABCD	Photoshop Digital Imaging	3
GD 225	Digital Illustration	3
		6
	Total Required	30
	Plus General Education Requirements	

Recommended Electives: FREN 120, HIST 105, HUM 155, RELG 120

II. ART-GRAPHIC DESIGN (Transfer)

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.*

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 121	Painting I	3
ART 124	Drawing I	3
ART 125	Drawing II	3
ART 129	Three-Dimensional Design	3
ART 140	History of Western Art I: Prehistoric to 1250 A.D.	3
ART 141	History of Western Art II: Circa 1250 A.D. to Present Time	3
ART 230	Figure Drawing I	3
GD 105	Fundamentals of Digital Media	3
GD 110	Graphic Design Principles	3
GD 125	Typography	3
	Total Required	33
	Plus General Education Requirements	

Recommended Electives: ART 150*, BUS 110, GD 230

*Offered at Grossmont College

AUTOMOTIVE TECHNOLOGY

The automotive technology curriculum provides for entry level skills in the automotive field. The program is designed to impart in-depth technical skills as required in today's highly technical automotive field. It prepares students for employment in the automotive and/or transportation trades. For those currently employed, upgrading and specialization skills will be stressed. The major emphasizes practical experience in actual repairs under simulated shop conditions.

CAREER OPPORTUNITIES

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

I. AUTOMOTIVE TECHNOLOGY**Associate in Science Degree Requirements:**

Course	Title	Units
AUTO 120	Engine Performance I - Mechanical and Ignition Systems	5
AUTO 121	Emission Control License	5
AUTO 122	Automotive Electrical Systems	5
AUTO 123	Engine Performance II - Fuel Systems	5
AUTO 124	Engine Performance III - Drivability	5
AUTO 180	Automotive Service Advisor	1
AUTO 182	Automotive Work Experience	3
		29

Select two of the following:

AUTO 129	Introduction to Hybrid, Electric and Alternative Fueled Vehicles	5
AUTO 130	Automotive Brakes and Brake License	5
AUTO 140	Four-Wheel Alignment	5
AUTO 152	Drive Train Systems	4
AUTO 160	Air Conditioning and Heating Systems	3
AUTO 170	Engine Overhaul	5
		7-10

Select one of the following:

AUTO 127	Advanced Automotive Electrical Systems	5
AUTO 135	Advanced Brakes	5
AUTO 145	Advanced Four-Wheel Alignment	5
AUTO 155	Advanced Drive Train Systems	4
AUTO 165	Advanced Air Conditioning and Heating Systems	3
AUTO 175	Advanced Engine Overhaul	5
AUTO 176	Engine Machining	5
		3-5
	Total Required	39-44
	Plus General Education Requirements	

FOR ALL CLASSES: Students are required to provide their own hand tools as required. Students are also required to provide ANSI Z-87.1 (1979) eye protection.

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-ADVANCED ENGINE PERFORMANCE AND EMISSIONS**Certificate Requirements:**

Course	Title	Units
AUTO 120	Engine Performance I - Mechanical and Ignition Systems	5
AUTO 121	Emission Control License	5
AUTO 122	Automotive Electrical Systems	5
AUTO 123	Engine Performance II - Fuel Systems	5
AUTO 124	Engine Performance III - Drivability	5
	Total Required	25

Certificate of Achievement

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

III. AUTOMOTIVE TECHNOLOGY-ASEP

The General Motors sponsored ASEP degree program offers a unique job training opportunity to those students who are accepted. Training includes all systems of the sponsoring manufacturers' automobiles. In addition, students will be required to further their studies in a sponsoring dealership as a paid (work experience) technician. Students who test low in English, reading or math assessment scores (and are accepted into the program) will be required to take remedial courses in those areas in addition to the general education courses. Students who have previous college credit or an associate degree or higher may be exempt from all or part of the general education requirements; please see a counselor.

Associate in Science Degree Requirements:

Course	Title	Units
AUTO 121	Emission Control License	5
AUTO 200	ASEP-Orientation	1
AUTO 201	ASEP-Electrical	6
AUTO 202	ASEP-Brakes and Alignment	7
AUTO 203	ASEP-Engine Repair	4.5
AUTO 204	ASEP-Power Train	7
AUTO 205	ASEP-Engine Performance and Air Conditioning	7
AUTO 206*	ASEP-Work Experience	15
	Total Required	52.5
	Plus General Education Requirements	

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

IV. AUTOMOTIVE TECHNOLOGY-ASSET

The Ford sponsored ASSET degree program offers a unique job training opportunity to those students who are accepted. Training includes all systems of the sponsoring manufacturers' automobiles. In addition, students will be required to further their studies in a sponsoring dealership as a paid (work experience) technician. Students who test low in English, reading or math assessment scores (and are accepted into the program) will be required to take remedial courses in those areas in addition to the general education courses. Students who have previous college credit or an associate degree or higher may be exempt from all or part of the general education requirements; please see a counselor.

Associate in Science Degree Requirements:

Course	Title	Units
AUTO 121	Emission Control License	5
AUTO 190	ASSET-Orientation, PDI and Lubrication	2
AUTO 191	ASSET-Brakes and Alignment	7
AUTO 192	ASSET-Drive Train	8
AUTO 193	ASSET-Engine Repair	4.5
AUTO 195	ASSET-Electronic Engine Controls	7
AUTO 196	ASSET-Electrical, Accessories and Air Conditioning	5
AUTO 197*	ASSET-Work Experience	13
	Total Required	51.5
	Plus General Education Requirements	

*Must be repeated five times for a total of 13 units.

V. AUTOMOTIVE TECHNOLOGY-BRAKES AND FRONT-END**Certificate Requirements:**

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

Certificate of Achievement

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

VI. AUTOMOTIVE TECHNOLOGY-ENGINE PERFORMANCE AND DRIVE TRAIN**Certificate Requirements:**

Course	Title	Units
AUTO 120	Engine Performance I - Mechanical and Ignition Systems	5
AUTO 152	Drive Train Systems	4
AUTO 170	Engine Overhaul	5
AUTO 180	Automotive Service Advisor	1
AUTO 182	Automotive Work Experience	3
	Total Required	18

Certificate of Achievement

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

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.

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 210	Biology II	4
	or	
BIO 240	Principles of Ecology, Evolution and Organismal Biology	5
BIO 215	Statistics for Life Sciences	3

BIO 220	Principles of Molecular, Cellular and Evolutionary Biology	3
and		
BIO 221	Principles of Molecular, Cellular and Evolutionary Biology Laboratory	1
or		
BIO 230	Principles of Cellular, Molecular and Evolutionary Biology	4
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	39-40
	Plus General Education Requirements	

BUSINESS

I. 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.

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	3
MATH 178	Calculus for Business, Social and Behavioral Sciences	4
	Total Required	31
	Plus General Education Requirements	

Recommended Electives: BUS 146, 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.

II. 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.

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
BOT 110*	Business English and Communication	3
or		
BUS 128	Business Communication	3
BUS 146	Marketing	3
BUS 152	Business Mathematics	2
BUS 195	Personal Finance	3
CIS 105	Introduction to Computing	3
or		
CIS 110	Principles of Information Systems	4
ECON 120	Principles of Macroeconomics	3
	Total Required	29-31
	Plus General Education Requirements	

*Offered at Grossmont College

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.

III. BUSINESS DATA MANAGEMENT

This degree program prepares students for careers in business using information technology to organize and promote advanced business management policies. Preparation for the Microsoft Certified Database Administrator exams.

Associate in Science Degree Requirements:

Course	Title	Units
BUS 128	Business Communication	3
BUS 240	SQL for Business Applications	3
BUS 242	Data Mining	3
CIS 110	Principles of Information Systems	4
CIS 140	Databases	3
CIS 190	Windows Operating System	3
CIS 240	Advanced Databases	3
CIS 242	Database Design	3
		25

Select one of the following:

COMM 120	Interpersonal Communication	3
COMM 122	Public Speaking	3
		3

Select one of the following:

CIS 216	Active Server Pages	3
CIS 290	Windows System Administration	3
CS 180	Introduction to Visual Basic Programming	4
		3-4
	Total Required	31-32
	Plus General Education Requirements	

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Business Data Management. 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:

DATABASE ADMINISTRATION

Certificate Requirements:

Course	Title	Units
BUS 240	SQL for Business Applications	3
BUS 242	Data Mining	3
CIS 140	Databases	3
CIS 240	Advanced Databases	3
CIS 242	Database Design	3
	Total Required	15

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

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.

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

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.

<i>Cuyamaca Course</i>	<i>Grossmont Course</i>
BOT 120	CSIS 120
BOT 120+121+122	CSIS 173ABCD
BOT 121	CSIS 121
BOT 122	CSIS 122
BOT 123	CSIS 123
BOT 123+124+125	CSIS 175ABCD
BOT 124	CSIS 124
BOT 125	CSIS 125
BOT 126	CSIS 126
BOT 127	CSIS 127
BOT 128	CSIS 128
BOT 129	CSIS 129
BOT 130	CSIS 130
BOT 131	CSIS 131

Associate in Science Degree Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
BOT 100	Basic Keyboarding	1
BOT 101AB	Keyboarding/Document Processing	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
BUS 128	Business Communication	3
CIS 105	Introduction to Computing	3
or		
CIS 110	Principles of Information Systems	4
		18-19

Select at least six units from the following:

BOT 108	Using Calculators to Solve Business Problems	1
BOT 123-125	Comprehensive Excel Levels I-III	3
BUS 109	Elementary Accounting	3
or		
BUS 120	Financial Accounting	4
BUS 156	Principles of Management	3
BUS 157	Principles of Leadership	3
BUS 176	Computerized Accounting Applications	2
CIS 140	Databases	3
		6
	Total Required	24-25
	Plus General Education Requirements	

Certificate of Achievement

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

II. ADMINISTRATIVE ASSISTANT**Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
BOT 102AB	Intermediate Keyboarding/ Document Processing I-II	3
BOT 104	Filing and Records Management	1
BOT 107	Office Systems and Procedures	2
BOT 108	Using Calculators to Solve Business Problems	1
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 129-131	Comprehensive PowerPoint Levels I-III	3
BOT 118	Integrated Office Projects	1
BOT 223-225	Office Work Experience	1-3
BUS 114	Effective Job Search	1
BUS 128	Business Communication	3
		17-27

Select at least three units from the following:

BOT 103ABC	Building Keyboarding Skill I, II, III	.5
BOT 105	Data Entry Skills	1
BOT 150	Using Microsoft Publisher	1
BOT 151	Using Microsoft Outlook	1
BUS 109	Elementary Accounting	3
		3
	Total Required	20-30
	Plus General Education Requirements	

Certificate of Achievement

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

III. EXECUTIVE ASSISTANT**Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
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
or		
CIS 140	Databases	3
BOT 129-131	Comprehensive PowerPoint Levels I-III	3
BOT 151	Using Microsoft Outlook	1
BOT 201	Advanced Keyboarding/Document Processing	3
BOT 203	Office Project Coordination	1
BUS 128	Business Communication	3
		20

Select at least three units from the following:

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

Select at least three units from the following:

BOT 103ABC	Building Keyboarding Skill I, II, III	.5
BOT 150	Using Microsoft Publisher	1
BOT 280ABC	Preparing for Performance Examinations in Microsoft Word	.5
BOT 281ABC	Preparing for Performance Examinations in Microsoft Excel	.5
BOT 282ABC	Preparing for Performance Examinations in Microsoft Access	.5
BOT 283ABC	Preparing for Performance Examinations in Microsoft PowerPoint	.5
CIS 240	Advanced Databases	3
		3
	Total Required	26
	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.

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. 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.

Certificate Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
BOT 096	Computer Basics for the Office	1
BOT 097	Windows Basics for the Office	1
BOT 100	Basic Keyboarding	1
BOT 101AB	Keyboarding/Document Processing	3
BOT 104	Filing and Records Management	1
BOT 105	Data Entry Skills	1
BUS 114	Effective Job Search	1
	Total Required	9

II. 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.

Certificate Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
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

III. 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.

Certificate Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
BOT 100	Basic Keyboarding	1
or		
BOT 101AB	Keyboarding/Document Processing	3
or		
BOT 102AB	Intermediate Keyboarding/ Document Processing I-II	3
BOT 107	Office Systems and Procedures	2
BOT 114	Essential Word	1
BOT 115	Essential Excel	1
BOT 223	Office Work Experience	1
BUS 110	Introduction to Business	3
BUS 128	Business Communication	3
	Total Required	12-14

IV. 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.

Certificate Requirements:

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

V. 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.

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

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. Lower division requirements for transfer to the engineering program at SDSU may also be met.

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 127	Survey Drafting Technology	3
CADD 131	Architectural Computer-Aided Drafting and Design	3
CADD 132	Advanced Computer-Aided Drafting and Design	3
CADD 133	Advanced Architectural Computer-Aided Drafting and Design	3
		12

Select two of the following:

CADD 125	3D Solid Modeling	3
or		
ENGR 125	Solid Modeling	3
CADD 126	Electronic Drafting	3
CADD 128	Dimensioning and Tolerancing	3
		6

Total Required Including Core Classes 24
Plus General Education Requirement

B. MANUFACTURING INDUSTRY

CADD 125	3D Solid Modeling	3
or		
ENGR 125	Solid Modeling	3
CADD 126	Electronic Drafting	3
CADD 128	Dimensioning and Tolerancing	3
		9

Select two of the following:

CADD 127	Survey Drafting Technology	3
CADD 131	Architectural Computer-Aided Drafting and Design	3
CADD 132	Advanced Computer-Aided Drafting and Design	3
CADD 133	Advanced Architectural Computer-Aided Drafting and Design	3
		6

Total Required Including Core Classes 21
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.

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.

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	Intermediate Calculus	4
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
PHYC 210	Wave Motion and Modern Physics	5
		43
		Plus General Education Requirements

Note:

- Students pursuing an emphasis in biochemistry should also take the following courses: BIO 210, 220, 221.
- Students who intend to enroll at UCSD should take MATH 285 and check with the Counseling Center regarding program options.

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 educational requirements of the 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.

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

I. CHILD DEVELOPMENT**Associate in Science Degree Requirements:****Core Curriculum:**

Course	Title	Units
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
		<u>27</u>

Areas of Emphasis:**A. INFANTS AND TODDLERS**

CD 124	Infant and Toddler Development	3
CD 132	Observation and Assessment: Field Experience Seminar	3
CD 143	Responsive Planning for Infant/Toddler Care	3
CD 170	Field Experience with Infants and Toddlers	2
		<u>11</u>
Total Required Including Core Courses		38
Plus General Education Requirements		

B. PRESCHOOL CHILDREN

CD 130	Curriculum: Design and Implementation	3
CD 132	Observation and Assessment: Field Experience Seminar	3
CD 133	Practicum-Field Experience: Student Teaching	2
		<u>8</u>

Select three to four units from the following:

CD 106	Practicum: Beginning Observation and Experience	1
CD 124	Infant and Toddler Development	3
CD 136	Adult Supervision	3
CD 137	Administration of Child Development Programs I	3
CD 138	Administration of Child Development Programs II	3
CD 145	Child Abuse and Family Violence in our Society	3

CD 153	Teaching in a Diverse Society	3
CD 210	Working with Young Children with Challenging Behaviors	3
		<u>3-4</u>
Total Required Including Core Courses		38-39
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.

II. SCHOOL AGE CHILD CARE

This major is designed to prepare students for employment in child care programs for elementary school age children. The certificate meets the Title 22 licensing standards for teachers in school age child care programs. Some courses also meet prerequisites for students who wish to transfer to elementary education programs.

Associate in Science Degree Requirements:

Course	Title	Units
CD 125	Child Growth and Development	3
CD 131	Child, Family and Community	3
CD 132	Observation and Assessment: Field Experience Seminar	3
CD 134	Health, Safety and Nutrition of Young Children	3
CD 148	Curriculum for School Age Child Care	3
CD 149	School Age Child Care Program Planning	3
CD 150	Field Experience for School Age Child Care	2
		<u>20</u>

Select one of the following:

CD 137	Administration of Child Development Programs I	3
CD 141	Working with Children with Special Needs	3
CD 145	Child Abuse and Family Violence in our Society	3
CD 157	Food and Nutrition for Children	3
ES 253	Physical Education in Elementary Schools	3
MATH 125	Structure and Concepts of Elementary Mathematics I	3
MATH 126	Structure and Concepts of Elementary Mathematics II	3
MUS 118	Introduction to Music	4
		<u>3-4</u>
Total Required		23-24
Plus General Education Requirements		

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in School Age Child Care. 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:**RECREATIONAL LEADERSHIP-OUTDOOR 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 outdoor recreational programs. Students who complete the requirements below and hold a current First Aid/CPR certification qualify for the certificate. An official request

must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Career Opportunities

Students may find employment with school age child care programs and with public, private and commercial park and recreation agencies. They may work with agencies serving youth and families, and with leisure-related businesses and tourism agencies. Career opportunities include naturalists, outdoor education specialists, park interpreters, camping guides, arts and crafts leaders, and park and recreation class teachers and aides.

Certificate Requirements:

Course	Title	Units
CD 125	Child Growth and Development	3
CD 157	Food and Nutrition for Children	3
CD 200	Introduction to Outdoor Education Programs	1
CD 201	Creative Activities for Outdoor Programs	1
CD 202	Field Experience for Recreational Leadership	1
ES 253	Physical Education in Elementary Schools	3
ES 270	Cooperative Games	1
Total Required		<u>13</u>

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. Students should consult the catalog of the transfer institution for specific requirements.

CAREER OPPORTUNITIES

Advertising Assistant
Announcer
Arts Administrator
College Professor
Communication Consultant
Journalist
Lawyer
Lobbyist
Narrator
Personnel Trainer
Politician
Proofreader
Public Relations Assistant
Researcher
Sales Manager
Teacher/Instructor

Associate in Arts Degree Requirements:

Course	Title	Units
COMM 110	Introduction to Mass Communication	3
COMM 120	Interpersonal Communication	3
COMM 122	Public Speaking	3
COMM 123	Advanced Public Speaking	3
COMM 145	Argumentation	3
		<u>15</u>

Select three of the following:

COMM 124	Intercultural Communication	3
COMM 128*	Global Communication	3
COMM 135	Oral Interpretation of Literature	3
COMM 136	Readers Theatre	3
COMM 137	Critical Thinking in Group Communication	3
COMM 144*	Communication Studies: Race and Ethnicity	3
COMM 240A	Intercollegiate Forensics	3
COMM 240B	Intercollegiate Forensics	3

COMM 240C Intercollegiate Forensics	3
COMM 240D Intercollegiate Forensics	3
	9
Total Required	24
Plus General Education Requirements	

*Offered at Grossmont College

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 Associate in Arts in Communication Studies for Transfer degree:

1. Minimum of 60 CSU-transferable semester units.
2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework. While a minimum of 2.0 is required for admission, some majors may require a higher GPA. Please consult with a counselor for more information.
3. Minimum of 18 semester units in the major as detailed below.
4. Certified completion of the California State University General Education Breadth pattern (CSU GE Breadth) OR the Intersegmental General Education Transfer Curriculum (IGETC) pattern; see Degree Requirements and Transfer Information section for more information. Note: If following IGETC GE pattern, IGETC-CSU pattern must be followed for admission to a CSU.

Associate in Arts Degree Requirements:

Core Curriculum:

Course	Title	Units
COMM 122	Public Speaking	3

Group A: Select two of the following:

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

Group B: Select two of the following:

COMM 110	Introduction to Mass Communication	3
COMM 124	Intercultural Communication	3
Any course not selected above		3
		6

Group 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 not selected above		3
		3

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

COMPUTATIONAL SCIENCE

To meet the needs of the successful computer science, computational science, or applied mathematics graduate, this degree program integrates the study of mathematical and computer sciences and prepares the student for immediate entry into a vocational field related to computer programming and/or further study in computer science, computational science or applied mathematics.

CAREER OPPORTUNITIES

- * Actuary
- * Computational Scientist
- * Computer Engineer
- * Mathematician
- * Programmer Analyst
- Semiconductor Technician
- * Software Engineer
- Software Technician
- * Statistician
- † Systems Analyst
- * Systems Engineer
- Technical Support Representative
- * Bachelor Degree or higher required
- † Bachelor Degree normally recommended

Associate in Science Degree Requirements:

Course	Title	Units
CS 182	Introduction to Java Programming	4
CS 282	Intermediate Java Programming and Fundamental Data Structures	4
CS 289	Computer Organization and Systems Programming	4
MATH 180	Analytic Geometry and Calculus I	5
MATH 245	Discrete Mathematics	3
MATH 280	Analytic Geometry and Calculus II	4
MATH 284	Linear Algebra	3
		27

Select one of the following:

MATH 150	Introduction to Computer Programming Applications in Mathematics	3
MATH 160	Elementary Statistics	3
MATH 281	Intermediate Calculus	4
		3-4

Select one of the following sequences:

BIO 130*	General Biology I	3
BIO 131*	General Biology I Laboratory	1
BIO 210	Biology II	4
or		
CHEM 141	General Chemistry I	5
CHEM 142	General Chemistry II	5
or		
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
PHYC 210	Wave Motion and Modern Physics	5
		8-15

Total Required 38-46
Plus General Education Requirements

*BIO 220 and 221 may be substituted for BIO 130 and 131.

Certificate of Achievement

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

COMPUTER AND INFORMATION SCIENCE

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

CAREER OPPORTUNITIES

- Communications Specialist
- Computer Game Programmer
- Computer Graphics Designer
- Computer Hardware Specialist
- Computer Help Desk Technician
- Computer Maintenance Technician
- Computer Software Technician
- * Computer Systems Engineer
- * Computing Analyst
- Cyber Café Owner
- * Database Manager
- GIS (Geographic Information Systems) Specialist
- Information Specialist
- * Information Systems Programmer
- LAN/WAN Manager
- Manufacturer's Representative
- Multimedia Designer
- Network Administrator
- * Network Analyst
- Network Consultant
- Network Control Technician
- Network Training and Support Specialist
- * Programmer Analyst
- Sales and Service
- * Scientific Programmer
- Software Consultant
- * Software Engineer/Designer
- * Systems Analyst
- * Systems Programmer
- Technical Support Representative
- * Telecommunications Programmer
- Telecommunications Technician
- * Telecommunications Technical Engineer
- Training Specialist
- Virtual Reality Developer
- Web Master
- Web Page 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
CIS 105	..CSIS 172
CIS 110	..CSIS 110
CIS 120	..CSIS 114
CIS 140	..CSIS 174ABCD
CIS 190	..CSIS 112
CIS 191	..CSIS 113
CIS 211	..CSIS 134
CIS 212	..CSIS 133
CIS 215	..CSIS 135
CIS 216	..CSIS 136
CIS 221	..CSIS 190
CIS 240	..CSIS 276
CIS 291	..CSIS 213
CS 119	..CSIS 119
CS 180	..CSIS 288
CS 181	..CSIS 296
CS 182	..CSIS 293
CS 280ABCD	..CSIS 289
CS 281	..CSIS 297
CS 282	..CSIS 294
CS 289	..CSIS 165
GD 222	..CSIS 137

I. COMPUTER NETWORK ADMINISTRATION

This degree program prepares students for careers in computer networking and related fields. Upon completion, students may find entry-level positions as network administrators, hardware technicians, data/voice/video cabling technicians, 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+, Security+ and CCNA (Cisco Certified Network Associate).

Associate in Science Degree Requirements:

Course	Title	Units
CIS 120	Computer Maintenance and A+ Certification	3
CIS 121	Network Cabling Systems	3
CIS 140	Databases	3
CIS 190	Windows Operating System	3
CIS 191	Linux Operating Systems	3
CIS 201	Cisco Networking Academy I Exploration	3
CIS 202	Cisco Networking Academy II	3
or		
CIS 125	Network+ Certification	3
CIS 263	Fundamentals of Network Security	3
		<u>24</u>

Select one of the following:

CS 119	Program Design and Development	3
CS 180	Introduction to Visual Basic Programming	4
CS 182	Introduction to Java Programming	4
		<u>3-4</u>

Select three of the following:

CIS 203	Cisco Networking Academy III	3
CIS 204	Cisco Networking Academy IV	3
CIS 205	Cisco Networking Academy V	3
CIS 206	Cisco Networking Academy VI	3
CIS 207	Cisco Networking Academy VII	3
CIS 208	Cisco Networking Academy VIII	3
CIS 209	Cisco Networking Academy IX	3
CIS 212	Introduction to Web Development	3
CIS 240	Advanced Databases	3
CIS 262	Wireless Networking	3
CIS 290	Windows System Administration	3
CIS 291	Linux System Administration	3
		<u>9</u>
Total Required		36-37
Plus General Education Requirements		

Certificate of Achievement

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

II. TELECOMMUNICATIONS NETWORKING TECHNOLOGY

This degree program prepares students with the technical and management skills necessary to enter careers in design, application, installation, management, operation and/or maintenance of computer and telecommunications networking systems including convergent voice, data and video communications over IP networks. Graduates will have specific strengths in the building, testing, operation and maintenance of computer and telecommunications networking systems.

Associate in Science Degree Requirements:

Course	Title	Units
CIS 120	Computer Maintenance and A+ Certification	3
CIS 121	Network Cabling Systems	3
CIS 161	Fundamentals of Telecommunications	3
CIS 162	Technical Diagramming Using Microsoft Visio	2
CIS 190	Windows Operating System	3
or		
CIS 191	Linux Operating Systems	3
CIS 201	Cisco Networking Academy I Exploration	3
CIS 202	Cisco Networking Academy II	3
or		
CIS 125	Network+ Certification	3
CIS 261	Telecommunications Networking Capstone	3
CIS 262	Wireless Networking	3
CIS 263	Fundamentals of Network Security	3
ET 110	Introduction to Basic Electronics	4
		<u>33</u>

Select one of the following:

CS 119	Program Design and Development	3
CS 180	Introduction to Visual Basic Programming	4
CS 182	Introduction to Java Programming	4
		<u>3-4</u>
Total Required		36-37
Plus General Education Requirements		

III. WEB DEVELOPMENT

This degree program provides students with practical experience creating websites and prepares them for entry-level positions as web designers, web programmers or web server administrators. The curriculum uses state of the art software and hardware typically found in the field of professional web development.

Associate in Science Degree Requirements:

Course	Title	Units
CIS 140	Databases	3
CIS 211	Web Markup Languages	3
CIS 212	Introduction to Web Development	3
CIS 213	Advanced Web Development	3
		<u>12</u>

Select two of the following:

CIS 110	Principles of Information Systems	4
CIS 190	Windows Operating System	3
CIS 191	Linux Operating Systems	3
CIS 290	Windows System Administration	3
		<u>6-7</u>

Select two of the following:

CIS 215	JavaScript Programming	3
CIS 216	Active Server Pages	3
CIS 219	PHP/MySQL Dynamic Web-Based Applications	3
CS 119	Program Design and Development	3
CS 180	Introduction to Visual Basic Programming	4
		<u>6-7</u>

Select three of the following:

CIS 221	Digital Video Editing and DVD Production	3
CIS 240	Advanced Databases	3
CIS 267	Directed Work Experience in CIS	1-4
GD 126ABCD	Photoshop Digital Imaging	3
GD 130	Professional Business Practices	3
GD 210	Professional Digital Photography I	3
GD 217	Web Graphics	3
GD 222	Flash Web Animation	3
GD 223	Advanced Flash Web Animation	3
		<u>7-10</u>
Total Required		31-36
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 Computer 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 SYSTEMS**Certificate Requirements:**

Course	Title	Units
CIS 201	Cisco Networking Academy I Exploration	3
CIS 202	Cisco Networking Academy II	3
CIS 203	Cisco Networking Academy III	3
CIS 204	Cisco Networking Academy IV	3
Total Required		<u>12</u>

II. COMPUTER PROGRAMMING**Certificate Requirements:**

Course	Title	Units
CS 180	Introduction to Visual Basic Programming	4
CS 182	Introduction to Java Programming	4
CS 280ABCD	Intermediate Visual Basic Programming	4
CS 282	Intermediate Java Programming and Fundamental Data Structures	4
Total Required		<u>16</u>

III. NETWORK SERVICING TECHNOLOGY**Certificate Requirements:**

Course	Title	Units
CIS 120	Computer Maintenance and A+ Certification	3
CIS 121	Network Cabling Systems	3
CIS 201	Cisco Networking Academy I Exploration	3
CIS 202	Cisco Networking Academy II	3
or		
CIS 125	Network+ Certification	3
		<u>12</u>

Select one of the following:

CIS 190	Windows Operating System	3
CIS 191	Linux Operating Systems	3
Total Required		<u>15</u>

IV. OPERATING SYSTEMS**Certificate Requirements:**

Course	Title	Units
CIS 190	Windows Operating System	3
CIS 191	Linux Operating Systems	3
CIS 290	Windows System Administration	3
CIS 291	Linux System Administration	3
Total Required		<u>12</u>

V. TELECOMMUNICATIONS SERVICING TECHNOLOGY**Certificate Requirements:**

Course	Title	Units
CIS 120	Computer Maintenance and A+ Certification	3
CIS 121	Network Cabling Systems	3
CIS 161	Fundamentals of Telecommunications	3
CIS 201	Cisco Networking Academy I Exploration	3
CIS 202	Cisco Networking Academy II	3
or		
CIS 125	Network+ Certification	3
	Total Required	15

VI. WEB DESIGN**Certificate Requirements:**

Course	Title	Units
CIS 211	Web Markup Languages	3
CIS 212	Introduction to Web Development	3
CIS 213	Advanced Web Development	3
		9

Select two of the following:

CIS 215	JavaScript Programming	3
GD 126ABCD	Photoshop Digital Imaging	3
GD 210	Professional Digital Photography I	3
GD 217	Web Graphics	3
GD 222	Flash Web Animation	3
GD 223	Advanced Flash Web Animation	3
		6
	Total Required	15

VII. WEB PROGRAMMING**Certificate Requirements:**

Course	Title	Units
CIS 140	Databases	3
CIS 211	Web Markup Languages	3
		6

Select three of the following:

CIS 215	JavaScript Programming	3
CIS 216	Active Server Pages	3
CIS 219	PHP/MySQL Dynamic Web-Based Applications	3
CIS 240	Advanced Databases	3
CS 119	Program Design and Development	3
and		
CS 119L	Program Design and Development Lab	1
GD 223	Advanced Flash Web Animation	3
		9-10
	Total Required	15-16

VIII. WEB SERVER MANAGEMENT**Certificate Requirements:**

Course	Title	Units
CIS 191	Linux Operating Systems	3
CIS 211	Web Markup Languages	3
CIS 290	Windows System Administration	3
		9

Select one of the following:

CIS 125	Network+ Certification	3
CIS 201	Cisco Networking Academy I Exploration	3
		3

Select one of the following:

CIS 215	JavaScript Programming	3
CIS 216	Active Server Pages	3
CIS 219	PHP/MySQL Dynamic Web-Based Applications	3
		3
	Total Required	15

CSU GENERAL EDUCATION BREADTH

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.

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. All courses including Exercise Science (ES) activity courses must be taken for a letter grade.

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
MATH 128	Children's Mathematical Thinking	1.5

5. Biological Sciences

BIO 128	Principles of Biology for Future Educators	4
or		
BIO 130	General Biology I	3
and		
BIO 131	General Biology I Laboratory	1

6. Physical Sciences

GEOL 104	Earth Science	3
----------	---------------	---

SOCIAL SCIENCE AND HISTORY**7. Global Perspective**

GEOG 106	World Regional Geography	3
----------	--------------------------	---

8. American Institutions (minimum six units)

HIST 108	Early American History	3
and		
HIST 109	Modern American History	3

For other options, see a counselor

9. Civilizations

HIST 100	Early World History	3
----------	---------------------	---

VISUAL AND PERFORMING ARTS/HUMANITIES**10. Music (minimum four units)**

MUS 001	Music Fundamentals	4
MUS 118	Introduction to Music	4

11. Art/Humanities

ART 100	Art Appreciation	3
---------	------------------	---

12. Human Growth and Development (choose one option):

<u>Option I:</u>		
CD 125	Child Growth and Development	3
<u>Option II:</u>		
PSY 120	Introductory Psychology	3
and		
PSY 165	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)	2-3
Total Required	60.5-66.5

Recommended Elective:

PSC 100* Physical Science for Elementary Education	3
---	---

*Offered at Grossmont College; required for
major at SDSU

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. The certificate will permit an individual to work as an engineering technician.

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**Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
CHEM 141	General Chemistry I	5
ENGR 100	Introduction to Engineering and Design	3

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 218	Plane Surveying	4
or		
SURV 218	Plane Surveying	4
ENGR 220	Engineering Mechanics–Dynamics	3
MATH 160	Elementary Statistics	3
MATH 180	Analytic Geometry and Calculus I	5
MATH 280	Analytic Geometry and Calculus II	4
MATH 281	Intermediate Calculus	4
MATH 285	Differential Equations	3
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
	Total Required	53
	Plus General Education Requirements	

II. CIVIL ENGINEERING**Certificate Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
CADD 127	Survey Drafting Technology	3
CHEM 141	General Chemistry I	5
ENGR 100	Introduction to Engineering and Design	3
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 218	Plane Surveying	4
or		
SURV 218	Plane Surveying	4
ENGR 220	Engineering Mechanics–Dynamics	3
MATH 180	Analytic Geometry and Calculus I	5
MATH 280	Analytic Geometry and Calculus II	4
PHYC 190	Mechanics and Heat	5
	Total Required	41

Certificate of Achievement

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

**III. ELECTRICAL AND COMPUTER
ENGINEERING****Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
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	3
ENGR 210	Electric Circuits	3
ENGR 270	Digital Design	4
MATH 180	Analytic Geometry and Calculus I	5
MATH 280	Analytic Geometry and Calculus II	4
MATH 281	Intermediate Calculus	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	52
	Plus General Education Requirements	

**IV. ELECTRICAL AND COMPUTER
ENGINEERING****Certificate Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
CADD 126	Electronic Drafting	3
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 Functional Data Structures	4
ENGR 100	Introduction to Engineering and Design	3
ENGR 119	Basic Engineering CAD	3
or		
CADD 120	Introduction to Computer-Aided Drafting and Design	3
ENGR 210	Electric Circuits	3
ENGR 270	Digital Design	4
ET 110	Introduction to Basic Electronics	4
MATH 180	Analytic Geometry and Calculus I	5
MATH 280	Analytic Geometry and Calculus II	4
MATH 284	Linear Algebra	3
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
	Total Required	50

Certificate of Achievement

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

**V. MECHANICAL AND AEROSPACE
ENGINEERING****Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
CHEM 141	General Chemistry I	5
ENGR 100	Introduction to Engineering and Design	3
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 210	Electric Circuits	3
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	Intermediate 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	57
	Plus General Education Requirements	

**VI. MECHANICAL AND AEROSPACE
ENGINEERING****Certificate Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
CHEM 141	General Chemistry I	5
ENGR 100	Introduction to Engineering and Design	3
ENGR 119	Basic Engineering CAD	3
or		
CADD 120	Introduction to Computer-Aided Drafting and Design	3
ENGR 120	Engineering Computer Applications	3
ENGR 125	Solid Modeling	3
or		
CADD 125	3D Solid Modeling	3
ENGR 200	Engineering Mechanics–Statics	3

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
PHYC 190	Mechanics and Heat	5
	Total Required	40

Certificate of Achievement

Students who complete the certificate requirements above qualify for a Certificate in Mechanical and Aerospace Engineering. 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:

MECHATRONICS

This certificate is designed for students interested in designing automatic electromechanical devices and systems. The curriculum provides the foundation for further studies in electrical and mechanical engineering.

Certificate Requirements:

Course	Title	Units
ENGR 170	Mechatronics: Introduction to Microcontrollers	2
	and	
ENGR 171	Mechatronics: Introduction to Robotics	2
	or	
ENGR 175	Mechatronics: Introduction to Microcontrollers and Robotics	2
ENGR 172	Mechatronics: Intermediate Microcontrollers	2
	and	
ENGR 173	Mechatronics: Intermediate Robotics	2
	or	
ENGR 176	Mechatronics: Intermediate Microcontrollers and Robotics	2
	Total Required	4-8

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.

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 study of English gives lifelong pleasure to students in exploring and understanding how language works to express human ideas and feelings. English course work also helps people succeed in such diverse fields as teaching, writing, editing, journalism, advertising, public relations, law, film and video work, politics, business and medicine.

CAREER OPPORTUNITIES

- Actor/Actress
- * College English Professor
- * Copywriter
- * Editor
- Fiction/Nonfiction Writer
- Foreign Service Officer
- †Freelance Writer
- * Lawyer
- * Librarian
- * Media Planner
- * Museum Curator
- †Newscaster
- †Playwright

- * Publisher
- * Reporter
- * Researcher
- * Secondary School Teacher
- * Bachelor Degree or higher required
- †Bachelor Degree normally recommended

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 270	World Literature I	3
ENGL 271	World Literature II	3
		18

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 275	Literary Period	3
ENGL 276	Major Author	3
ENGL 277	Literary Theme	3
		6

Select one of the following:

ENGL 201	Introduction to Images of Women in Literature	3
ENGL 202	Introduction to Film as Literature	3
ENGL 207	Romantic Fiction	3
ENGL 214	Masterpieces of Drama	3
ENGL 217	Fantasy and Science Fiction	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 120	European Humanities	3
HUM 140	American Humanities	3
HUM 155	Mythology	3
PHIL 115	History of Philosophy I: Ancient and Medieval	3
PHIL 117	History of Philosophy II: Modern and Contemporary	3
RELG 215	Introduction to the New Testament	3
		3
	Total Required	30
	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.

ENTREPRENEURSHIP-SMALL BUSINESS MANAGEMENT

This degree program provides a course of study for students who are interested in developing an appreciation and understanding of the functional areas within the small business environment. The degree provides a working knowledge of small business operations to both the prospective business person as well as the

owner/manager of an existing business, and is co-sponsored by the Small Business Administration.

CAREER OPPORTUNITIES

Administrative Assistant
Assistant Manager
Bookkeeper
Small Business Owner/Manager

Associate in Science Degree Requirements:

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

Select two of the following:

BUS 112	Entrepreneurship: Successful Marketing	3
BUS 141	Entrepreneurship: Managing a New Business	3
BUS 146	Marketing	3
BUS 156	Principles of Management	3
BUS 176	Computerized Accounting Applications	2
CIS 212	Introduction to Web Development	3
		5-6

Select at least three units from the following:

BOT 100	Basic Keyboarding	1
BOT 101AB	Keyboarding/Document Processing	1.5
BOT 102AB	Intermediate Keyboarding/Document Processing I-II	3
BOT 114	Essential Word	1
BOT 115	Essential Excel	1
BOT 116	Essential Access	1
BOT 117	Essential PowerPoint	1
CIS 105	Introduction to Computing	3
CIS 110	Principles of Information Systems	4
		3
	Total Required	23-25
	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.

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**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
EHS 100	Introduction to Environmental and Occupational Safety and Health (OSH) Technology	4
EHS 110	Pollution Prevention	3
EHS 150	Hazardous Waste Management Applications	4
EHS 200	Hazardous Materials Management (HMM) Applications	4
EHS 210	Industrial Wastewater and Stormwater Management	4
EHS 215	Air Quality Management	3
EHS 230	Safety and Emergency Response	4
EHS 240*	Cooperative Work Experience	1-4
		38-41

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		41-46
Plus General Education Requirements		

*Student must complete EHS 100 to be eligible for this course.

II. ENVIRONMENTAL TECHNICIAN**Certificate Requirements:**

Course	Title	Units
EHS 100	Introduction to Environmental and Occupational Safety and Health (OSH) Technology	4
EHS 110	Pollution Prevention	3
EHS 150	Hazardous Waste Management Applications	4
EHS 200	Hazardous Materials Management (HMM) Applications	4
EHS 210	Industrial Wastewater and Stormwater Management	4

EHS 215	Air Quality Management	3
EHS 230	Safety and Emergency Response	4
EHS 240*	Cooperative Work Experience	1-3
Total Required		27-29

*Student must complete EHS 100 to be eligible for this course.

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**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
EHS 100	Introduction to Environmental and Occupational Safety and Health (OSH) Technology	4
EHS 130	Environmental/Occupational Health Effects of Hazardous Materials	3
EHS 135	General Industry Safety Standards	3
EHS 145	Construction Safety Standards	3
EHS 200	Hazardous Materials Management (HMM) Applications	4
EHS 201	Introduction to Industrial Hygiene and Occupational Health	4
EHS 205	Safety and Risk Management Administration	4
EHS 230	Safety and Emergency Response	4
EHS 240*	Cooperative Work Experience	1-4
		38-41

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		41-46
Plus General Education Requirements		

*Student must complete EHS 100 to be eligible for this course.

IV. OCCUPATIONAL SAFETY AND HEALTH (OSH) TECHNICIAN**Certificate Requirements:**

Course	Title	Units
EHS 100	Introduction to Environmental and Occupational Safety and Health (OSH) Technology	4
EHS 130	Environmental/Occupational Health Effects of Hazardous Materials	3
EHS 135	General Industry Safety Standards	3
EHS 200	Hazardous Materials Management (HMM) Applications	4
EHS 201	Introduction to Industrial Hygiene and Occupational Health	4
EHS 240*	Cooperative Work Experience	1-4
		19-22

Select two of the following:

EHS 145	Construction Safety Standards	3
EHS 205	Safety and Risk Management Administration	4
EHS 230	Safety and Emergency Response	4
		7-8
Total Required		26-30

*Student must complete EHS 100 to be eligible for this course.

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.

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.

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 115	Fundamentals of Chemistry	4
COMM 122	Public Speaking	3
ES 014ABC	Body Building	1.5
ES 250	Introduction to Physical Education	2
ES 255	Care and Prevention of Athletic Injuries	3
HED 158	Nutrition for Fitness and Sports	3
or		
HED 255*	Science of Nutrition	3
PSY 120	Introductory Psychology	3
SOC 120	Introductory Sociology	3
		31.5

Select one of the following:

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

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

ES 001	Adapted Physical Exercise	1
ES 009	Aerobic Dance Exercise	1
ES 019ABC	Physical Fitness	1.5
ES 060ABC	Badminton	1
ES 076ABC	Tennis	1
ES 125ABC	Golf	1
ES 155ABC	Basketball	1
ES 170ABC	Soccer	1
ES 171ABC	Softball	1
ES 175ABC	Volleyball	1
		2-2.5

Total Required 36.5-37
Plus General Education Requirements

*HED 255 must be taken for SDSU and several other transfer institutions. Please check with transfer institution for specific requirements.

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.

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 157	Food and Nutrition for 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
ES 273	Field Experience in School-Based Recreational Leadership	1
Total Required		13

GENERAL STUDIES

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

REQUIREMENTS

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

I. AS or AA General Education Requirements (see Degree Requirements and Transfer Information section)**AND****II. Areas of Emphasis**

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

- Business and Technology
- Communication and Language Arts
- Humanities and Fine Arts
- Lifelong Health and Fitness
- Science and Mathematics
- Social and Behavioral Sciences

A. 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.

Business

BUS 109, 110, 111, 112, 114, 115, 119, 120, 121, 122, 124, 125, 128, 129, 141, 146, 150, 154, 155, 156, 157, 159ABCD, 162, 176, 195, 240, 242

Computer and Information Science

CIS 105, 110, 120, 121, 125, 140, 161, 162, 190, 191, 201, 202, 203, 204, 205, 211, 212, 213, 215, 216, 219, 221, 240, 242, 261, 262, 263, 290, 291

Economics

ECON 110, 120, 121

Mathematics

MATH 160, 178, 180

B. 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 six units in Communication and six units in Language Arts. The remaining six units may be taken from either category.

Communication

COMM 110, 120, 122, 123, 124, 135, 136, 137, 145

Language Arts

ARAM 120, 121, 220, 221
ARBC 120, 121, 220, 221, 250, 251
ASL 120, 121, 220, 221
ENGL 122, 124, 126, 135-138, 201, 202, 207, 214, 217, 221, 222, 231, 232, 270, 271, 275, 276, 277
FREN 120, 121, 220, 221, 250, 251
ITAL 120, 121, 220
LIR 110
NAKY 120, 121, 220, 221
SPAN 120, 120A, 120B, 121, 220, 221, 250, 251

C. 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 six units in

Humanities and six units in Fine Arts. The remaining six units may be taken from either category.

Humanities

ARAM 120, 121, 220
ARBC 120, 121, 220, 221, 250, 251
ASL 120, 121, 220, 221
COMM 124
ENGL 201, 202, 207, 214, 217, 221, 222, 231, 232, 270, 271, 275, 276, 277
FREN 120, 121, 220, 221, 250, 251
HIST 100, 101, 105, 106
HUM 110, 115, 120, 140, 155
ITAL 120, 121, 220
NAKY 120, 121, 220, 221
PHIL 110, 115, 117
RELG 120, 130, 210, 215
SPAN 120, 120A, 120B, 121, 220, 221, 250, 251

Fine Arts

ART 100, 120, 121, 124, 125, 129, 135, 140, 141, 143, 144, 145, 220, 221, 222, 224, 225, 230, 231, 232, 233, 235, 236
MUS 110, 111, 114, 115, 116, 117
THTR 110, 120, 121

D. Lifelong Health and Well-Being

The Associate in Arts in General Studies with an Emphasis in Lifelong Health and Well-Being 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 of how to obtain optimal health, physical skill, and fitness throughout the lifespan. Potential career fields that students will be prepared for upon completion include recreation leaders, personal trainers, coaches, and commercial fitness center staff. Students must take a minimum of six units in Health, six units in Exercise Science, and three units in Nutrition. The remaining three units may be taken from any category.

Health

HED 105, 120, 122, 201, 202, 203, 251

Exercise Science

CD 200, 201, 202
ES 207, 219, 225, 231, 250, 253, 254, 254L, 255, 270, 271, 272, 273

Nutrition

HED 155, 158, 255

E. 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 basic mathematical skills to solve numerical problems encountered in daily life, and more advanced skills for applications in the physical and life sciences. Students must complete a minimum of six units in Science and six units in Mathematics. The remaining six units may be taken from any category.

Science

ANTH 130
ASTR 110, 112
BIO 112, 115, 122, 124, 128, 130, 131, 140, 141, 141L, 152, 210, 220, 221, 230, 240, 251

CHEM 102, 105, 113, 115, 116, 120, 141, 142, 230, 231, 240, 251
 ET 110
 GEOG 120, 121
 GEOL 104, 110, 111
 OCEA 112, 113
 PHYC 110, 120, 121, 130, 131, 190, 200, 210
 PSC 110, 111

Mathematics

BIO 215
 MATH 103, 110, 120, 125, 126, 150, 160, 170, 175, 176, 178, 180, 245, 280, 281, 284, 285
 PSY 215

CADD and Engineering

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

Computer Science

CS 119, 119L, 180, 181, 182, 280ABCD, 281, 282, 289

F. Social and Behavioral Sciences

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

Social Science

ANTH 120
 ARBC 145
 ECON 110, 120, 121, 124
 GEOG 106, 122, 130, 132
 HIST 100, 101, 105, 106, 108, 109, 114, 115, 118, 119, 122, 123, 124, 130, 131, 132, 180, 181, 210, 271, 275, 276, 277
 POSC 120, 121, 124, 130, 140
 SOC 120, 125, 130

Behavioral Science

CD 115, 125, 131
 COMM 110, 124
 HED 251
 PSY 120, 125, 134, 138, 140, 165, 170, 220

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 (Transfer) degree; please consult the catalog of the transfer institution for specific requirements.*

CAREER OPPORTUNITIES

* Advertising Director
 * Art Director
 Cartoonist
 Desktop Publisher
 Display Designer
 Graphic Designer
 Illustrator

* Marketing Director
 Multimedia Designer
 Package Designer
 Technical Illustrator
 Web Page 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.

<i>Cuyamaca Course</i>	<i>Similar Grossmont Course</i>
GD 222	CSIS 137

Associate in Science Degree Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
ART 124	Drawing I	3
CIS 212	Introduction to Web Development	3
GD 105	Fundamentals of Digital Media	3
GD 110	Graphic Design Principles	3
GD 125	Typography	3
GD 126ABCD	Photoshop Digital Imaging	3
GD 129	Page Layout	3
GD 130	Professional Business Practices	3
GD 225	Digital Illustration	3
		<u>27</u>

Select three of the following:

ART 230	Figure Drawing I	3
GD 210	Professional Digital Photography I	3
GD 211	Professional Digital Photography II	3
GD 217	Web Graphics	3
GD 222	Flash Web Animation	3
GD 223	Advanced Flash Web Animation	3
GD 230	Graphic Design Work Experience	1-4
		<u>7-10</u>
	Total Required	34-37
	Plus General Education Requirements	

Certificate of Achievement

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

CERTIFICATES OF SPECIALIZATION:

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

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

I. DIGITAL PHOTOGRAPHY

Certificate Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
GD 110	Graphic Design Principles	3
GD 126ABCD	Photoshop Digital Imaging	3
GD 130	Professional Business Practices	3
GD 210	Professional Digital Photography I	3
GD 211	Professional Digital Photography II	3
	Total Required	<u>15</u>

II. WEB GRAPHICS

Certificate Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
CIS 212	Introduction to Web Development	3
GD 110	Graphic Design Principles	3
GD 210	Professional Digital Photography I	3
GD 217	Web Graphics	3
GD 222	Flash Web Animation	3
	Total Required	<u>15</u>

HISTORY

This major prepares students for transfer to four-year institutions for continued study in the field of history. The degree program fulfills the lower division requirements for most majors in the history department at San Diego State University and is typical of requirements at other four-year schools. For special requirements, transfer students should consult the catalog of the college or university of their choice. History classes provide useful background for students in such fields as history, education, political science and law.

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:

<i>Course</i>	<i>Title</i>	<i>Units</i>
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
		<u>12</u>

Select six units from the following:

HIST 118	U.S. History: Chicano/Chicana Perspectives I	3
HIST 119	U.S. History: Chicano/Chicana Perspectives II	3
HIST 122	Women in Early American History	3
HIST 123	Women in Modern American History	3
HIST 124	History of California	3
HIST 180	U.S. History: Black Perspectives I	3
HIST 181	U.S. History: Black Perspectives II	3
HIST 210	Women in Western Civilization	3
		<u>6</u>
	Total Required	18
	Plus General Education Requirements	

Recommended Electives: ART 140, 141; ENGL 221, 222, 231, 232; GEOG 130; POSC 121, 124, 140; RELG 120, 130

INTERSEGMENTAL GENERAL EDUCATION TRANSFER CURRICULUM (CSU OR UC)

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.

KUMEYAAY STUDIES

Certificate of Specialization

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

Certificate Requirements:

Course	Title	Units
GEOG 132	Cultural Ethnobotany	3
HIST 132	Kumeyaay History I: Precontact-1900	3
NAKY 120	Kumeyaay I	5
		<hr/> 11

Select one of the following:

HIST 133	Kumeyaay History II: 1900-Present	3
NAKY 121	Kumeyaay II	5
NAKY 220	Kumeyaay III	5
NAKY 221	Kumeyaay IV	5
		<hr/> 3-5
	Total Required	14-16

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.

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
COMM 122	Public Speaking	3
		<hr/> 22

Select two of the following:

BOT 123-125	Comprehensive Excel Levels I-III	3
BUS 176	Computerized Accounting Applications	2
CIS 105	Introduction to Computing	3
CIS 110	Principles of Information Systems	4
		<hr/> 5-7

Select one of the following:

BUS 110	Introduction to Business	3
BUS 121	Managerial Accounting	4
BUS 146	Marketing	3
BUS 154	Diversity in the Workplace	3
BUS 157	Principles of Leadership	3
BUS 159	Management Internship	3
BUS 195	Personal Finance	3
ECON 120	Principles of Macroeconomics	3
		<hr/> 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.

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.

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	Intermediate Calculus	4
MATH 284	Linear Algebra	3
		<hr/> 16

Select one of the following:

MATH 245	Discrete Math	3
MATH 285	Differential Equations	3
		<hr/> 3

Select one of the following:

ENGR 120	Engineering Computer Applications	3
MATH 160	Elementary Statistics	3
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
PHYC 210	Wave Motion and Modern Physics	5
		<hr/> 3-5
	Total Required	22-24
	Plus General Education Requirements	

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

Certificate of Achievement

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

MUSIC

I. 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.

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	1
MUS 191	Performance Studies	1
MUS 232	Class Piano III	3
MUS 233	Class Piano IV	3
MUS 290	Performance Studies	1
MUS 291	Performance Studies	1
		38

Select four of the following:

MUS 108	Rock, Pop and Soul Ensemble	1
MUS 109	Rock, Pop and Soul Ensemble	1
MUS 136	Chamber Singers	1
MUS 137	Chamber Singers	1
MUS 152	Concert Band	1
MUS 153	Concert Band	1
MUS 156	Jazz Ensemble	1
MUS 157	Jazz Ensemble	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 236	Chamber Singers	1
MUS 237	Chamber Singers	1
MUS 252	Concert Band	1
MUS 253	Concert Band	1
MUS 256	Jazz Ensemble	1
MUS 257	Jazz Ensemble	1
MUS 258	Chorus	1
MUS 259	Chorus	1
		4

Total Required 42
Plus General Education Requirements

II. 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).

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 Art 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 114	Music in the United States	3
MUS 115	History of Rock Music	3
MUS 116	Introduction to World Music	3
MUS 117	Introduction to Music History and Literature	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 136	Chamber Singers	1
MUS 137	Chamber Singers	1
MUS 152	Concert Band	1
MUS 153	Concert Band	1
MUS 156	Jazz Ensemble	1
MUS 157	Jazz Ensemble	1
MUS 158	Chorus	1
MUS 159	Chorus	1
MUS 190	Performance Studies	1
MUS 191	Performance Studies	1
MUS 208	Rock, Pop and Soul Ensemble	1
MUS 209	Rock, Pop and Soul Ensemble	1
MUS 236	Chamber Singers	1
MUS 237	Chamber Singers	1
MUS 252	Concert Band	1
MUS 253	Concert Band	1
MUS 256	Jazz Ensemble	1
MUS 257	Jazz Ensemble	1
MUS 258	Chorus	1
MUS 259	Chorus	1
MUS 290	Performance Studies	1
MUS 291	Performance Studies	1
		4

Total Required 38-39
Plus General Education Requirements

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, or may be self-employed.

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 261	Tree Surgery and Specialized Pruning Techniques	1
OH 262	Arboriculture: Palms and Related Plants	1
OH 263	Urban Forestry	1
OH 275	Diagnosing Horticultural Problems	1.5
OH 290*	Cooperative Work Experience Education	3
		22.5

Select eleven units from the following:

OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 172	Introduction to Landscape Design	3
OH 235	Principles of Landscape Irrigation	4
OH 276	Horticultural Equipment Repair and Maintenance	3
OH 278	Business Management for Ornamental Horticulture	3
SPAN 120	Spanish I	5
		<hr/> 11
	Total Required	33.5
	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 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.

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 119	Wedding Design II	3
OH 120	Fundamentals of Ornamental Horticulture	3
OH 278	Business Management for Ornamental Horticulture	3
OH 290*	Cooperative Work Experience Education	3
		<hr/> 24

Select nine units from the following:

ART 100	Art Appreciation	3
ART 120	Two-Dimensional Design	3
ART 124	Drawing I	3
ART 141	History of Western Art II: 1250 A.D. to Present Time	3
ART 145	Contemporary Art History: 1945-Present	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 180	Plant Materials: Annuals and Perennials	3
		<hr/> 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.

Associate in Science Degree Requirements:

Course	Title	Units
BUS 156	Principles of Management	3
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 220	Landscape Construction: Concrete and Masonry	3
OH 235	Principles of Landscape Irrigation	4
OH 265	Golf Course and Sports Turf Management	3
OH 276	Horticultural Equipment Repair and Maintenance	3
OH 290*	Cooperative Work Experience Education	5
	Total Required	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 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.

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 174	Turf and Ground Cover Management	3
OH 221	Landscape Construction: Irrigation and Carpentry	3
OH 235	Principles of Landscape Irrigation	4
OH 238	Irrigation System Design	3
OH 290*	Cooperative Work Experience Education	3
		<hr/> 24

Select nine units from the following:

ENGR/SURV 218	Plane Surveying	4
OH 130	Plant Pest Control	3
OH 171	Landscape Drafting	1
OH 172	Introduction to Landscape Design	3
OH 200**	Introduction to Computer Aided Landscape Design	3
OH 225	Landscape Contracting	3

OH 276	Horticultural Equipment Repair and Maintenance	3
SPAN 120	Spanish I	5
		<hr/> 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.

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

Certificate of Achievement

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

V. LANDSCAPE DESIGN

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

Associate in Science Degree Requirements:

Course	Title	Units
OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 170	Plant Materials: Trees and Shrubs	3
OH 171	Landscape Drafting	1
OH 172	Introduction to Landscape Design	3
OH 173	Intermediate Landscape Design	3
OH 175	Advanced Landscape Design	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 200*	Introduction to Computer Aided Landscape Design	3
OH 201**	Advanced Computer Aided Landscape Design	3
OH 220	Landscape Construction: Concrete and Masonry	3
OH 235	Principles of Landscape Irrigation	4
OH 278	Business Management for Ornamental Horticulture	3
OH 290***	Cooperative Work Experience Education	3
	Total Required	37
	Plus General Education Requirements	

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

**May also be offered at Southwestern College as LA 201.

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

Certificate of Achievement

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

VI. LANDSCAPE TECHNOLOGY

Landscape installation and management forms the focus of this program. Students will learn the latest methods, materials and techniques in the landscape industry. Those seeking careers in

landscape technology are entering a challenging career field that requires knowledge of plant material, turfgrass, landscape and irrigation design, soils, pest control and landscape construction. A professional in the field has the opportunity to be involved in working with people as well as plants as the manager must direct and supervise employees, deal with clients and suppliers, and may become involved in professional organizations. Students entering the landscape industry, those already employed but seeking to upgrade their skills, and those wishing to transfer to Cal Poly or other four-year degree programs will benefit from the curriculum. Graduates are employed by landscape contractors, public agencies or may be self-employed.

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 172	Introduction to Landscape Design	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 220	Landscape Construction: Concrete and Masonry	3
OH 235	Principles of Landscape Irrigation	4
OH 290*	Cooperative Work Experience Education	3
		<u>28</u>

Select five units from the following:

OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 173	Intermediate Landscape Design	3
OH 174	Turf and Ground Cover Management	3
OH 221	Landscape Construction: Irrigation and Carpentry	3
OH 222	Japanese Garden Construction and Maintenance	1
OH 225	Landscape Contracting	3
OH 276	Horticultural Equipment Repair and Maintenance	3
OH 278	Business Management for Ornamental Horticulture	3
SPAN 120	Spanish I	5
		<hr/> 5
	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 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.

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 240	Greenhouse Plant Production	3
OH 290*	Cooperative Work Experience Education	3
		<u>24</u>

Select nine units from the following:

BIO 122	The Secret Life of Plants	4
OH 114	Floral Design I	3
OH 172	Introduction to Landscape Design	3
OH 276	Horticultural Equipment Repair and Maintenance	3
OH 278	Business Management for Ornamental Horticulture	3
SPAN 120	Spanish I	5
		<hr/>
		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 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.

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 102	Xeriscape: Water Conservation in the Landscape	2
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 172	Introduction to Landscape Design	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 220	Landscape Construction: Concrete and Masonry	3
OH 221	Landscape Construction: Irrigation and Carpentry	3
OH 250	Landscape Water Management	2

OH 255	Sustainable Urban Landscape Principles	2
OH 263	Urban Forestry	1
OH 275	Diagnosing Horticultural Problems	1.5
OH 290*	Cooperative Work Experience Education	3
		<u>35.5</u>
		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 Landscape. 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.

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

Associate in Science Degree Requirements:

Course	Title	Units
BOT 120-122	Comprehensive Word Levels I-III	3
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:

PARA 120	Administrative Law	3
PARA 125	Business Organizations	1
PARA 140	Criminal Law and Procedures	3
PARA 145	Estate Planning	3
PARA 150	Family Law	3
PARA 155	Insurance Law	3
PARA 160	Personal Injury	1
PARA 165	Probate Law	3
PARA 170	Worker's Compensation	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, 137

ENGR 100

MATH 103, 110, 120, 125, 150, 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, 126, 128, 130, 131, 140,

152, 210, 220, 221

CHEM 113, 115, 116, 120, 141

GEOG 120, 121

GEOL 104, 110, 111

OCEA 112, 113

PHYC 110, 120, 121, 130, 131, 190, 200, 210

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, 140, 141, 144, 145

ASL 120

COMM 124, 145

ENGL 122, 201, 202, 207, 214, 217, 221, 222,

231, 232, 270, 271, 275, 276, 277

FREN 120, 121, 220, 221, 250, 251

HIST 100, 101, 105, 106, 210

HUM 110, 120, 140, 155

ITAL 120, 121, 220

MUS 110, 111, 114, 115, 116, 117

PHIL 110, 115, 117, 140, 160, 170

RELG 120, 130, 210, 215

SPAN 120, 120A & 120B*, 121, 141, 145, 220,

221, 250, 251

THTR 110, 120, 121

AREA D—SOCIAL AND BEHAVIORAL SCIENCES

(Minimum of 3 semester units)

One of the following courses:

ANTH 120

CD 115, 125

ECON 110, 120, 121

GEOG 106, 130, 132

HED 120, 122, 201

HIST 108, 109, 114, 115, 118, 119, 122, 123,

124, 130, 131, 132, 133, 180, 181

POSC 120, 121, 124, 130, 140

PSY 120, 125, 134, 138, 140, 165, 170, 220

SOC 120, 125, 130

ADDITIONAL REQUIREMENTS:

(Minimum 6 semester units)

Two courses from two different areas:

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

*Will receive general education credit for SPAN 120B only after completion of SPAN 120A.

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 103 or a higher numbered mathematics class with a grade of "C" or better or "P**" or completion of MDTP Assessment placing into a class higher than MATH 103 or 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 two units of credit for exercise science which will satisfy the activity requirement for graduation. To receive credit for military service, a DD-214 or 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.

PHYSICAL SCIENCE

The physical science major is designed to give students working toward a bachelor's degree a well-balanced, lower division program. The curriculum emphasizes 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.

CAREER OPPORTUNITIES

This degree program trains students for a wide variety of diverse professions such as technical administration in industry and government, legal work with patents, scientific librarianship, scientific journalism, and physical science teacher.

- * Astronomer
- * Cartographic Technician
- * Chemist
- * Geodetic Technician
- * Geologist
- * Meteorologist
- * Meteorological Technician
- * Oceanographer
- * Patent Lawyer
- * Physical Science Teacher
- * Physical Science Technician
- * Physicist
- * Range Technician
- * Soil Conservation Technician
- * Bachelor Degree or higher required

Associate in Science Degree Requirements:

Course	Title	Units
ASTR 110	Descriptive Astronomy	3
CHEM 141	General Chemistry I	5
CHEM 142	General Chemistry II	5
CHEM 231	Organic Chemistry I	5
GEOL 110	General Geology	3
MATH 180	Analytical Geometry and Calculus I	5
MATH 280	Analytical Geometry and Calculus II	4
MATH 281	Intermediate Calculus	4
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
PHYC 210	Wave Motion and Modern Physics	5
	Total Required	49
	Plus General Education Requirements	

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.

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	Intermediate 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		

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 Associate in Arts in Psychology for Transfer degree:

- Minimum of 60 CSU-transferable semester units.
- Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework. While a minimum of 2.0 is required for admission, some majors may require a higher GPA. Please consult with a counselor for more information.
- Minimum of 18 semester units in the major as detailed below.
- Certified completion of the California State University General Education Breadth pattern (CSU GE Breadth) OR the Intersegmental General Education Transfer Curriculum (IGETC) pattern; see Degree Requirements and Transfer Information section for more information. Note: If following IGETC GE pattern, IGETC-CSU pattern must be followed for admission to a CSU.

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

Course	Title	Units
PSY 120	Introductory Psychology	3
PSY 205	Research Methods for Psychology	3
PSY 215	Statistics for the Behavioral Sciences	3
		9

Group A: Select one of the following:

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

Group B: Select two of the following:

PSY 165	Development Psychology	3
PSY 220	Learning	3
Course not selected above (BIO 130 or PSY 140)		3
		6
Total Units for Major		18
Total Units for CSU GE Breadth or IGETC		37-39
Total Transferable Elective Units		3
Total Units for Degree		60

REAL ESTATE

I. REAL ESTATE

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

CAREER OPPORTUNITIES

- Agent
- †Appraiser
- Broker
- Builder/Developer
- *Economist
- Escrow Officer/Trust Manager
- Investor
- Lender/Financial Institution
- Property Manager
- Salesperson
- Title Officer
- *Bachelor Degree or higher required
- †Office of Real Estate Appraisal License required

Associate in Science Degree Requirements:

Course	Title	Units
RE 190	Real Estate Principles	3
RE 191	Real Estate Practice	3
RE 192	Real Estate Finance	3
RE 193	Real Estate Legal Aspects	3
RE 194	Real Estate Appraisal	3
		15

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

BUS 110*	Introduction to Business	3
BUS 120	Financial Accounting	4
ECON 110	Economic Issues and Policies	3
or		
ECON 120	Principles of Macroeconomics	3
or		
ECON 121	Principles of Microeconomics	3
or		
RE 197	Real Estate Economics	3
RE 201	Real Estate Property Management	3
RE 250*	Real Estate Internship	1-4
RE 294	Advanced Real Estate Appraisal	3
Elective (select one elective from below)		3
		7-11

Electives:

BUS 125	Business Law: Legal Environment of Business	3
RE 125	Escrow Procedures I	3
RE 204	Real Estate Office Administration	3
RE 292	Mortgage Loan Brokering and Lending	3
Total Required		22-26
Plus General Education Requirements		

*Non-Department of Real Estate Licensing course

Certificate of Achievement

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

BROKER'S LICENSE

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

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
One Accounting or Economics course		3-4
Electives (select two electives from above)		6
Total Required		24-25

II. ESCROW**Certificate Requirements:**

Course	Title	Units
RE 125	Escrow Procedures I	3
RE 126	Escrow Procedures II	3
RE 127	Escrow Procedures III	3
RE 190	Real Estate Principles	3
RE 192	Real Estate Finance	3
RE 193	Real Estate Legal Aspects	3
		18

Select two of the following:

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
RE 191	Real Estate Practice	3
RE 194	Real Estate Appraisal	3
RE 197	Real Estate Economics	3
RE 201	Real Estate Property Management	3
RE 204	Real Estate Office Administration	3
		6-8
Total Required		24-26

Certificate of Achievement

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

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.

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 110	Economic Issues and Policies	3
or		
ECON 120	Principles of Macroeconomics	3
or		
ECON 121	Principles of Microeconomics	3
HED 201	Introduction to Public Health	3
MATH 160	Elementary Statistics	3
or		
PSY 215	Statistics for the Behavioral Sciences	3
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
Plus General Education Requirements		

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 Associate in Arts in Sociology for Transfer degree:

- Minimum of 60 CSU-transferable semester units.
- Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework. While a minimum of 2.0 is required for admission, some majors may require a higher GPA. Please consult with a counselor for more information.
- Minimum of 18 semester units in the major as detailed below.
- Certified completion of the California State University General Education Breadth pattern (CSU GE Breadth) OR the Intersegmental General Education Transfer Curriculum (IGETC) pattern; see Degree Requirements and Transfer Information section for more information. Note: If following IGETC GE pattern, IGETC-CSU pattern must be followed for admission to a CSU.

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

Course	Title	Units
MATH 160	Elementary Statistics	3
PSY 138	Social Psychology	3
SOC 120	Introductory Sociology	3
SOC 125	Marriage, Family and Alternative Lifestyles	3
SOC 130	Contemporary Social Problems	3
		15

Group A: Select one of the following:

ANTH 120	Cultural Anthropology	3
PSY 120	Introductory Psychology	3
		3
Total Units for Major		18
Total Units for CSU GE Breadth or IGETC		37-39
Total Transferable Elective Units		3
Total Units for Degree		60

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.

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
or		
SPAN 120A	Spanish I	2.5
and		
SPAN 120B	Spanish I	2.5
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.

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.

CAREER OPPORTUNITIES

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

Associate in Science Degree Requirements:

Course	Title	Units
CADD 115	Engineering Graphics	3
or		
ENGR 100	Introduction to Engineering and Design	3
CADD 120	Introduction to Computer-Aided Drafting and Design	3
CADD 127	Survey Drafting Technology	3
MATH 170	Analytic Trigonometry	3
PHYC 110	Introductory Physics	4
SURV 218	Plane Surveying	4
or		
ENGR 218	Plane Surveying	4
SURV 220	Boundary Control and Legal Principles	3
SURV 240	Advanced Surveying	4
Total Required		27
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.

UNIVERSITY STUDIES

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

REQUIREMENTS:**I. California State University (CSU) General Education Breadth**

- Complete CSU General Education Breadth (see Degree Requirements and Transfer Information section).
- Earn a grade of "C" or better in 30 of the required 39 semester units of general education to include all courses in Area A and the Mathematical/Quantitative Reasoning courses in Area B.

- Credit earned through external examinations, i.e., AP, will be applied towards general education in accordance with Cuyamaca College policies. Please note: This may be different than how the external exam is used on a CSU certification.
- Complete a minimum of 18 units in an Area of Emphasis (listed below).
- Complete a minimum of 60 degree applicable CSU transferable semester units.
- Earn a cumulative GPA of 2.0 in all college course work completed.
- Meet Cuyamaca College residence requirements for graduation (see Admission Information).

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

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

AND**III. Area of Emphasis**

- Business and Economics
- Communication and Language Arts
- Humanities and Fine Arts
- Science and Mathematics
- Social and Behavioral Sciences

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

A. Business and Economics

Courses in this Area of Emphasis 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:

Business

BUS 110, 120, 121, 125, 128*

Economics

ECON 110, 120, 121

Electives

CIS 110, MATH 160, 178, 180

B. Communication and Language Arts

Courses in this Area of Emphasis 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:

Communication

COMM 110, 120*, 122, 123, 124, 145

Language Arts

ARAM 120, 121, 220
ARBC 120, 121, 220, 221
ASL 120, 121, 220, 221
ENGL 122, 124, 126, 201, 207, 214, 221, 222, 231, 232, 270, 271
FREN 120, 121, 220, 221, 250, 251
ITAL 120, 121, 220
NAKY 120, 121, 220, 221
SPAN 120, 120A, 120B, 121, 220, 221, 250, 251

C. Humanities and Fine Arts

Courses in this Area of Emphasis 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:

Humanities

ARAM 120, 121, 220
ARBC 120, 121, 220, 221
ART 140, 141, 145
ASL 120, 121, 220, 221
ENGL 122, 201, 202, 207, 214, 217, 221, 222, 231, 232, 270, 271
FREN 120, 121, 220, 221
HIST 100, 101, 105, 106, 210
HUM 110, 115, 120, 155
ITAL 120, 121, 220
NAKY 120, 121, 220, 221
PHIL 110, 115, 117
RELG 120, 130, 210, 215
SPAN 120, 120A, 120B, 121, 220, 221, 250, 251

Fine Arts

ART 100, 120, 124, 125, 129, 140, 141, 143*, 144, 145
MUS 110, 111, 114, 115, 116, 117
THTR 110, 120, 121

D. Science and Mathematics

Courses in this Area of Emphasis 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 basic 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. The remaining six units may be taken from either category:

Science

ANTH 130
ASTR 110, 112
BIO 122, 124, 128, 130, 131, 140, 141, 141L, 152*, 210, 220, 221, 230, 240, 251
CHEM 102, 105*, 113, 115, 116, 120, 141, 142, 231
CS 119, 119L, 180, 181, 182, 280ABCD, 281, 282, 289
GEOG 120, 121
GEOL 104, 110, 111
OCEA 112, 113
PHYC 110, 120, 121, 130, 131, 190, 200, 210
PSC 110, 111

Mathematics

BIO 215
MATH 120, 125, 126, 150, 160, 170, 175, 176, 178, 180, 245, 280, 281, 284, 285
PSY 215

E. Social and Behavioral Sciences

Courses in this Area of Emphasis 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:

Social Science

ANTH 120
ECON 110, 120, 121
GEOG 106, 130, 132
HIST 100, 101, 105, 106, 108, 109, 114, 115, 118, 119, 122, 123, 130, 131, 132, 180, 181, 210, 275, 276, 277
POSC 120, 121, 124, 130, 140
SOC 120, 125, 130

Behavioral Science

CD 115, 125, 131
COMM 110, 124
HED 251*
PSY 120, 125, 134, 138, 140, 165, 170, 220

*Course not UC-transferable

WATER/WASTEWATER TECHNOLOGY

This degree program is designed to prepare students for employment by municipal drinking water and wastewater treatment departments or industrial treatment facilities. Careers in water/wastewater technology generally involve the administration, operation and maintenance of both drinking water and wastewater treatment facilities as well as distribution and collection systems.

CAREER OPPORTUNITIES

- Backflow Program Manager
- * Chemist
- Construction Inspector
- Cross Connection Control Specialist
- Electronic Technician
- * Engineer, Civil
- * Engineer, Electrical
- Engineer Technician
- Equipment Maintenance Operator
- Field Operations Supervisor
- GIS/Mapping Specialist
- Inspector
- Instrumentation and Control Technician
- Instrumentation and Control Supervisor
- Laboratory Analyst
- Machinist
- Mechanical Systems Technician
- Meter Maintenance Technician
- Plant Operator
- Plant Process Control Electrician
- Plant Process Control Supervisor
- Recycled Water Inspector
- * Safety and Risk Manager
- Survey Technician
- Utility Worker
- Wastewater Plant Operator
- Wastewater Treatment Superintendent
- * Water Distribution Operator
- * Water Quality and Treatment Manager
- Water Systems Technician
- * Bachelor Degree recommended

I. CROSS CONNECTION CONTROL SYSTEMS

Associate in Science Degree Requirements:

Course	Title	Units
WWTR 101	Fundamentals of Water/Wastewater Technology	3
WWTR 102	Calculations in Water/Wastewater Technology	3
WWTR 104	Applied Hydraulics	3
WWTR 130	Water Distribution Systems	3
WWTR 280	Backflow Tester Training	2
WWTR 282	Cross Connection Control Specialist	3
WWTR 284	Cross Connection Control Specialist- Recycled Water	3
		<u>20</u>

Select eight to ten units from the following:

EHS 100	Introduction to Environmental and Occupational Safety and Health (OSH) Technology	4
EHS 110	Pollution Prevention	3
EHS 210	Industrial Wastewater and Stormwater Management	4
WWTR 110	Laboratory Analysis for Water/Wastewater	3
WWTR 290	Cooperative Work Experience	3
		<u>8-10</u>
Total Required		28-30
Plus General Education Requirements		

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in

Cross Connection Control Systems. 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 SYSTEMS

Associate in Science Degree Requirements:

Course	Title	Units
WWTR 101	Fundamentals of Water/Wastewater Technology	3
WWTR 102	Calculations in Water/Wastewater Technology	3
WWTR 104	Applied Hydraulics	3
WWTR 106	Introduction to Electrical and Instrumentation Processes	3
WWTR 130	Water Distribution Systems	3
WWTR 134	Mechanical Maintenance	3
WWTR 265	Water Distribution Systems II	3
		<u>21</u>

Select eight to nine units from the following:

EHS 100	Introduction to Environmental and Occupational Safety and Health (OSH) Technology	4
EHS 110	Pollution Prevention	3
EHS 210	Industrial Wastewater and Stormwater Management	4
WWTR 112	Basic Plant Operations: Water Treatment	3
WWTR 270	Public Works Supervision	3
WWTR 280	Backflow Tester Training	2
WWTR 282	Cross Connection Control Specialist	3
WWTR 284	Cross Connection Control Specialist- Recycled Water	3
WWTR 290	Cooperative Work Experience	3
		<u>8-9</u>
Total Required		29-30
Plus General Education Requirements		

Certificate of Achievement

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

III. WATER TREATMENT PLANT OPERATOR

Associate in Science Degree Requirements:

Course	Title	Units
WWTR 101	Fundamentals of Water/Wastewater Technology	3
WWTR 102	Calculations in Water/Wastewater Technology	3
WWTR 104	Applied Hydraulics	3
WWTR 106	Introduction to Electrical and Instrumentation Processes	3
WWTR 110	Laboratory Analysis for Water/Wastewater	3
WWTR 112	Basic Plant Operations: Water Treatment	3
WWTR 117	Advanced Plant Operations: Water Treatment	3
		<u>21</u>

Select one of the following:

WWTR 114	Basic Plant Operations: Wastewater Treatment	3
WWTR 130	Water Distribution Systems	3
WWTR 132	Wastewater Collection Systems	3
WWTR 134	Mechanical Maintenance	3
WWTR 270	Public Works Supervision	3
WWTR 290	Cooperative Work Experience	3
		<u>3</u>

Select two of the following:

EHS 100	Introduction to Environmental and Occupational Safety and Health (OSH) Technology	4
EHS 110	Pollution Prevention	3

EHS 210	Industrial Wastewater and Stormwater Management	4
WWTR 280	Backflow Tester Training	2
WWTR 282	Cross Connection Control Specialist	3
		<u>5-8</u>
Total Required		29-32
Plus General Education Requirements		

Certificate of Achievement

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

IV. WASTEWATER COLLECTION SYSTEMS

Associate in Science Degree Requirements:

Course	Title	Units
WWTR 101	Fundamentals of Water/Wastewater Technology	3
WWTR 102	Calculations in Water/Wastewater Technology	3
WWTR 104	Applied Hydraulics	3
WWTR 106	Introduction to Electrical and Instrumentation Processes	3
WWTR 132	Wastewater Collection Systems	3
WWTR 134	Mechanical Maintenance	3
WWTR 267	Wastewater Collection Systems II	3
		<u>21</u>

Select eight to nine units from the following:

EHS 100	Introduction to Environmental and Occupational Safety and Health (OSH) Technology	4
EHS 110	Pollution Prevention	3
EHS 210	Industrial Wastewater and Stormwater Management	4
WWTR 114	Basic Plant Operations: Wastewater Treatment	3
WWTR 270	Public Works Supervision	3
WWTR 280	Backflow Tester Training	2
WWTR 282	Cross Connection Control Specialist	3
WWTR 284	Cross Connection Control Specialist- Recycled Water	3
WWTR 290	Cooperative Work Experience	3
		<u>8-9</u>
Total Required		29-30
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.

V. WASTEWATER TREATMENT OPERATOR

Associate in Science Degree Requirements:

Course	Title	Units
WWTR 101	Fundamentals of Water/Wastewater Technology	3
WWTR 102	Calculations in Water/Wastewater Technology	3
WWTR 104	Applied Hydraulics	3
WWTR 106	Introduction to Electrical and Instrumentation Processes	3
WWTR 110	Laboratory Analysis for Water/Wastewater	3
WWTR 114	Basic Plant Operations: Wastewater Treatment	3
WWTR 120	Advanced Plant Operations: Wastewater Treatment	3
		<u>21</u>

Select one of the following:

WWTR 112	Basic Plant Operations: Water Treatment	3
WWTR 130	Water Distribution Systems	3

WWTR 132 Wastewater Collection Systems	3
WWTR 134 Mechanical Maintenance	3
WWTR 270 Public Works Supervision	3
WWTR 290 Cooperative Work Experience	3
	<hr/> 3

Select two of the following:

EHSM 100 Introduction to Environmental and Occupational Safety and Health (OSH) Technology	4
EHSM 110 Pollution Prevention	3
EHSM 210 Industrial Wastewater and Stormwater Management	4
WWTR 280 Backflow Tester Training	2
WWTR 282 Cross Connection Control Specialist	3
	<hr/> 5-8
Total Required	29-32
Plus General Education Requirements	

Certificate of Achievement

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