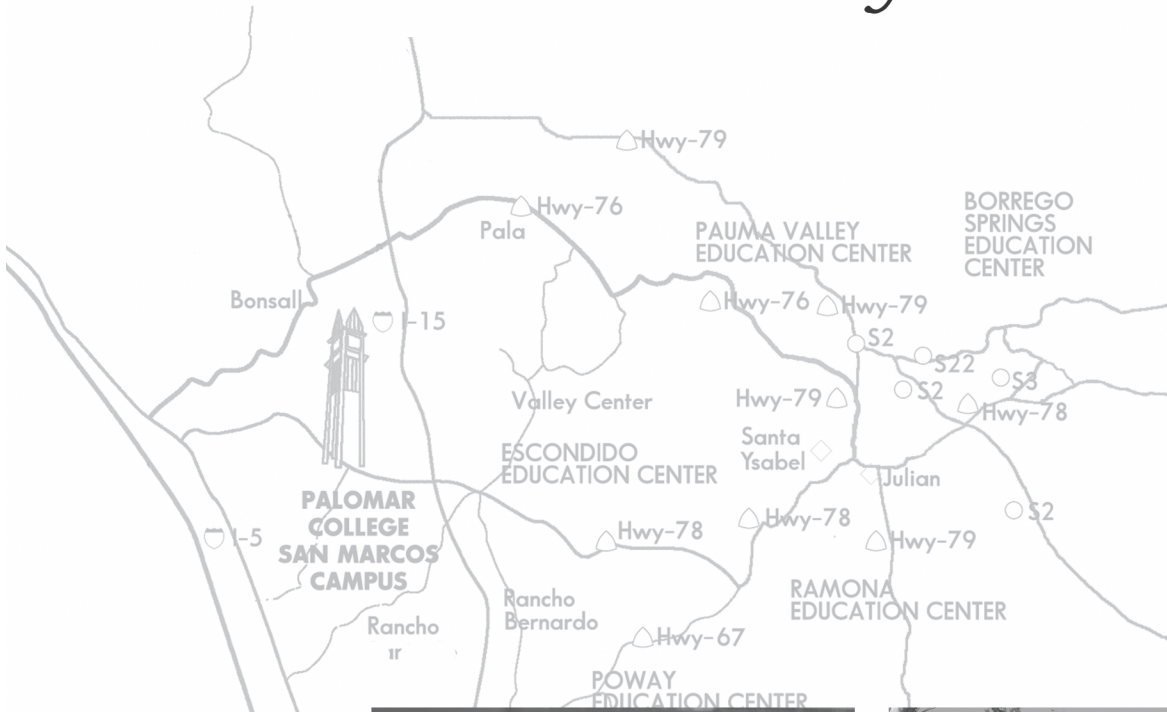


Building Your Future *Programs & Course Offerings*

7



Discipline and Program Offerings

AA: Associate in Arts Degree
CA: Certificate of Achievement
CP: Certificate of Proficiency

Accounting	66		
Accounting (AA, CA)			
Bookkeeping/Accounting Clerk (CP)			
Administration of Justice	67		
Administration of Justice – General (AA)			
Administration of Justice – Homeland Security (AA)			
Administration of Justice – Investigations (AA)			
Administration of Justice – Law Enforcement (AA)			
Basic Police Academy (CA)			
Aeronautical Sciences	70		
Aeronautical Operations and Management (AA, CA)			
Aircraft Commercial Pilot (AA, CA)			
Africana Studies	72		
Africana Studies (CP)			
Air Conditioning, Heating, and Refrigeration (ROP)	251		
Air Conditioning, Heating, and Refrigeration (CP)			
Alcohol and Other Drug Studies	73		
American Indian Studies	73		
American Indian Studies (CA)			
American Sign Language	75		
ASL/English Interpreter Training Program (AA, CA)			
American Studies	77		
Anthropology	78		
Archaeological Excavator (CA)			
Archaeological Surveyor and Lab Assistant (CA)			
Archaeology (AA)			
Apprenticeship Training	80		
Acoustical Installer (AA, CA)			
Carpentry (AA, CA)			
Drywall/Lather (AA, CA)			
Electrician (AA, CA)			
Inside Wireman (AA, CA)			
Sheet Metal (AA, CA)			
Sound and Communication Systems Installer (AA, CA)			
Sound Technician (AA, CA)			
Arabic	91		
Art	91		
Digital Animation, Compositing and Music (CP)			
Graphic Design (AA)			
Illustration (AA)			
Interactive Media Design			
Emphasis in 3D Modeling and Animation (AA, CA)			
Emphasis in Multimedia Design (AA, CA)			
Pictorial Arts			
Emphasis in Painting (AA)			
Emphasis in Printmaking (AA)			
Three-Dimensional Arts			
Emphasis in Ceramics (AA)			
Emphasis in Crafts (AA)			
Emphasis in Glass (AA)			
			Emphasis in Jewelry and Metalsmithing (AA)
			Emphasis in Sculpture (AA)
Art – Design	99		
Graphic Design (AA)			
Art – Illustration	100		
Illustration (AA)			
Astronomy	101		
Astronomy (AA, CA)			
Athletics and Competitive Sports	101		
Automotive Technology	102		
Auto Body Work (AA, CA)			
Auto Chassis and Drive Lines (AA, CA)			
Electronic Tune-Up/Computer Control Systems (AA, CA)			
Mechanics – General (AA, CA)			
Automotive Technology (ROP)	252		
Auto Body Work (AA, CA)			
Biology	104		
Biology – General (AA, CA)			
Biology – Preprofessional (AA, CA)			
Botany	106		
Business Education	107		
Advertising, Marketing, and Merchandising (AA, CA)			
Business Administration (AA)			
Business – General (AA)			
E-Business (CP)			
Entrepreneurship (CP)			
Internet			
Emphasis in Business Education (AA, CA)			
Retail Management (CA)			
Salesperson – Retail (CP)			
Business Management	111		
Business Management (AA, CA)			
Cabinet and Furniture Technology	112		
Cabinetmaking and Furniture Design (AA, CA)			
Cabinetmaking and Millwork (AA, CA)			
Furniture Making (AA, CA)			
Chemistry	117		
Chemistry (AA, CA)			
Chicano Studies	118		
Child Development	119		
Child Development Teacher (AA, CA)			
Child Development Master Teacher (CA)			
Child Development Site Supervisor (CA)			
Chinese	122		
Cinema	123		
Cinema (AA, CA)			
Communications	124		
Computer Science and Information Systems	124		
Cisco (CP)			
Computer Network Administration (AA)			
Emphasis in Microsoft and Linux Management			
Emphasis in Cisco and Linux Management			
Emphasis in Cisco and Microsoft Management			
Computer Science (AA, CA)			
Desktop Support Specialist (CP)			
Information Systems (AA, CA)			

Linux Operating System (CP)	
Microsoft SQL Database Administrator (CP)	
Microsoft Office User Specialist (CP)	
Network Engineer (CP)	
Oracle Database (CP)	
Video Game Artist (CP)	
Video Game Specialist (CP)	
Visual Basic (CP)	
Voice and Data Cable Installer (CP)	
Web Developer	
Emphasis in Java/Open Source (CP)	
Emphasis in Windows (CP)	
Web Server Administrator	
Emphasis in Linux (CP)	
Emphasis in Windows (CP)	
Computer Science and Information Systems (ROP)	252
Applications Support Specialist (CP)	
Computer Technology (AA, CA)	
Microcomputer Operating Systems (CP)	
Microcomputer Technology (CP)	
PC Repair Technician (CP)	
PC Support Technician (CP)	
Software Applications Specialist (CP)	
Construction Inspection	133
Construction Inspection (AA, CA)	
Construction Technology	134
Cooperative Education	134
Counseling	135
Culinary Arts	136
Culinary Arts (AA, CA)	
Culinary Skills (CP)	
Patisserie and Baking (CP)	
Culinary Arts (ROP)	255
Culinary Arts (AA, CA)	
Culinary Skills (CP)	
Patisserie and Baking (CP)	
Dance	137
Dance (AA, CA)	
Dance Specialist for Children (CA)	
Dental Assisting	143
Dental Assisting/RDA (AA, CA)	
Diesel Mechanics Technology	145
Diesel Technology (AA, CA)	
Diesel Mechanics Technology (ROP)	257
Diesel Technology (AA, CA)	
Disability Resource	146
Drafting Technology	146
Architectural Drafting Technology (AA, CA)	
Computer Assisted Drafting (AA, CA)	
Drafting Technology – Multimedia (AA, CA)	
Drafting Technology – Technical (AA, CA)	
Electro-Mechanical Drafting and Design (AA, CA)	
Interactive Media Design	
Emphasis in 3D Modeling and Animation (AA, CA)	
Emphasis in Multimedia Design (AA, CA)	
Drafting Technology (ROP)	258
Earth Sciences	151
Economics	151
Economics (AA, CA)	
Education	152
Electro-Mechanical Equipment Technician	152
Electro-Mechanical Equipment Technician (CA)	
Electronics and Computer Hardware Technology	152
Advanced Electronic Technician (AA, CA)	
Computer Hardware/Telecommunication Technician (AA, CA)	
Electronics Assembler (CP)	
Emergency Medical Education	154
Paramedic Training (AA, CA)	
Engineering	157
Engineering (AA)	
English	159
English (AA)	
English as a Second Language	161
Entertainment Technology	163
Entertainment Technology (CP)	
Family and Consumer Sciences	164
Family and Consumer Sciences – General (AA, CA)	
Fashion	165
Fashion Design/Entry-Level (CA)	
Fashion Design/Technical (AA)	
Fashion Merchandising/Entry-Level (CA)	
Fashion Merchandising Sales Associate (CP)	
Fashion Merchandising/Technical (AA)	
Fire Technology	168
Fire Technology – Emergency Management (AA, CA)	
Fire Technology – General (AA, CA)	
Foreign Languages	170
(See Arabic, Chinese, French, German, Italian, Japanese, Spanish, Tagalog)	
French	171
General Studies	172
General Studies	
Arts and Humanities Emphasis (AA)	
Science and Mathematics Emphasis (AA)	
Social and Behavioral Sciences Emphasis (AA)	
Geography	173
Geographic Information Systems (CP)	
Geology	174
Geology (AA)	
German	175
Graphic Communications	176
Digital Animation, Compositing, and Music (CP)	
Digital Arts (CP)	
Digital Imaging (AA, CA)	
Digital Media (CP)	
Digital Prepress Operator (CP)	
Digital Publishing (CP)	
Digital Video (AA, CA)	
E-Commerce Design (CP)	
Electronic Publisher (CP)	

Graphic Communications Emphasis in Electronic Publishing (AA, CA)	
Graphic Communications Emphasis in Management (AA, CA)	
Graphic Communications Emphasis in Production (AA, CA)	
Interactive Media Design	
Emphasis in 3D Modeling and Animation (AA, CA)	
Emphasis in Multimedia Design (AA, CA)	
Interactive Web Multimedia and Audio (AA, CA)	
Internet	
Emphasis in Business Education (AA, CA)	
Emphasis in Graphic Communication (AA, CA)	
Internet Publisher (CP)	
New Media Compositing, Authoring, and Distribution (AA, CA)	
Screen Printer (CP)	
Screen Printing (AA, CA)	
Video Game Artist (CP)	
Web Data Base Design (CP)	
Web Graphics (CP)	
Web Motion Graphics (CP)	
Graphic Communications (ROP)	259
Health	186
History	186
Humanities	188
Industrial Technology	188
Institutional Food Service Training	188
Child Nutrition General Assistant (CP)	
Child Nutrition Site Manager (AA, CA)	
Child Nutrition Substitute (CP)	
Child Nutrition Technical Assistant (CP)	
Dietetic Service Supervisor (AA, CA)	
Insurance	190
Commercial and Personal Insurance Services (AA, CA)	
Interior Design	191
Interior Design (AA, CA)	
International Business	192
International Business (AA, CA)	
Italian	193
Japanese.....	194
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Journalism (AA, CA)	
Judaic Studies	195
Legal Studies	195
Legal Studies (AA)	
Liberal Studies	197
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Library Technology	197
Library Technology (AA, CA)	
Mathematics	198
Mathematics (AA)	
Medical Assisting	200
Administrative Medical Assisting (AA, CA)	
Clinical Medical Assisting (AA, CA)	
Microbiology	201
Multicultural Studies	202
(See Africana Studies, American Indian Studies, American Studies, Chicano Studies, Judaic Studies)	
Music	202
Digital Animation, Compositing, and Music (CP)	
Kodaly Music Education (CP)	
Music (AA)	
Noncredit Courses	261
Adult Basic Education	
Older Adult Education	
Basic Education	
Career and Technical Education	
Citizenship	
Customer Service Academy	
Disability Education	
English as a Second Language	
Home Economics Education	
Health and Safety Education	
Parenting	
Nursing Education	208
Associate Degree Nursing/ADN (AA)	
Associate Degree Nursing/LVN to RN (AA)	
Associate Degree Nursing/Diploma RN to ADN (AA)	
Oceanography	211
Office Information Systems	211
Administrative Assistant (AA, CA)	
Data Entry Clerk (CP)	
International Administrative Assistant (AA, CA)	
Legal Secretary (AA, CA)	
Medical Office Specialist (AA, CA)	
Medical Transcriptionist (AA, CA)	
Office Assistant (CP)	
Receptionist (CP)	
Virtual Assistant (CP)	
Optical Technology (ROP)	260
Optical Technology (CP)	
Paralegal Studies	215
Legal Support Assistant (CP)	
Philosophy	218
Photography	219
Commercial Photography (CP)	
Digital Imaging (AA, CA)	
Fine Art Photography (CP)	
Photography (AA, CA)	
Physical Education	221
Adult Fitness/Health Management (CA)	
Physical Education (AA)	
Physical Science	226
Physics	226
Political Science	227
Psychology	228
Psychological and Social Services (AA, CA)	

Public Administration 230
 Public Administration (AA, CA)

Public Works Management 230
 Public Works Management (AA, CA)

Radio and Television 231
 Digital Media (CP)
 Digital Video (AA, CA)
 Radio and Television (AA, CA)

Reading 234

Real Estate 234
 Escrow (AA, CA)
 Real Estate Appraisal License Preparation (CP)
 Real Estate Broker License Preparation (AA, CA)
 Real Estate Salesperson License Preparation (CP)

Recreation 237
 Outdoor Leadership (AA, CA)
 Recreation Agency Leader (AA, CA)

Regional Occupational Programs 251
 See:
 Air Conditioning, Heating, and Refrigeration (ROP)
 Automotive Technology (ROP)
 Computer Science and Information Systems (ROP)
 Culinary Arts (ROP)
 Diesel Mechanics Technology (ROP)
 Drafting Technology (ROP)
 Graphic Communications (ROP)
 Optical Technology (ROP)
 Upholstery (ROP)

Religious Studies 238

Sociology 238

Spanish 240

Speech 241
 Speech Communication (AA)

Tagalog 242

Theatre Arts 243
 Entertainment Technology (CA)
 Theatre Arts (AA)
 Theatre – Technical (CA)

Upholstery (ROP) 260
 Automotive Upholstery (CP)
 Upholstery (CP)

Wastewater Technology Education 245
 Wastewater Technology Education (AA, CA)

Water Technology Education 247
 Water Technology Education (AA, CA)

Welding 248
 Entry-Level Gas Metal Arc/Flux Cored Arc Welding (CP)
 Entry-Level Gas Tungsten Arc Welding (CP)
 Entry-Level Shielded Metal Arc Welding (CP)
 Welding Technology (AA, CA)

Women’s Studies 249
 Women’s Studies (AA)

Zoology 249

Course Information

Students are held responsible for understanding and fulfilling all requirements presented herein, and for understanding and fulfilling any changes in those requirements which may have occurred since the printing of the catalog. Students are advised to check at the division or department levels for these changes.

Course Numbering System

Palomar College operates on a semester system. The course numbering system has meaning with regard to level and transfer. The college numbering system, effective summer 1990, is as follows:

1 – 49: Remedial or college preparatory courses which do not apply toward an A.A. degree and which are not intended for transfer to another community college or four-year college or university.

50 – 99: Courses which apply toward an AA degree but which are not intended for transfer to a four-year college or university.

100 – 299: Courses which count toward an AA degree and/or are intended for transfer to a four-year college or university (refer to Transfer Identification below). Freshman-level courses are generally given numbers from 100 – 199, and sophomore-level courses are generally given numbers from 200 – 299.

Courses numbered 100 through 299 are intended as lower division transferable course work. The final decision in regard to transferability rests with the institution to which the credits are transferred.

Numbers in parentheses indicate the units granted for a course.

Transfer Identification

Courses at Palomar College which transfer to public four-year universities in California are identified at the beginning of each course description with the abbreviation CSU and/or UC.

The notation CSU means the course will transfer to the 23 campuses of the California State University system.

The notation UC means the course will transfer to the 9 campuses of the University of California system.

California Articulation Number (CAN) System

The California Articulation Number System is one of several intersegmental projects designed to aid students in transferring between California's higher education campuses without loss of time, credit, or duplication of effort. The CAN system is a statewide numbering system independent from course numbers assigned by local colleges.

A CAN number signals that participating California colleges and universities have determined that courses offered by other campuses are equivalent in content and scope to courses offered on their own campuses, regardless of their unique titles or local identifying numbers. Thus, if a schedule of classes or catalog lists a course bearing a CAN number, students on one campus can be assured that it will be accepted in lieu of the comparable CAN course noted in the catalog or schedule of classes of another campus.

The CAN numbering system is obviously useful for students attending more than one community college and is applied to many transferable, lower-division courses students need as preparation for their intended major. Because these CAN courses may change, students should always check with their campus' counselors.

Students should consult the ASSIST database at www.assist.org for specific information on course agreements. The college counseling staff will help students interpret this information.

CAN Courses

Following is a list of Palomar College courses qualified in the CAN system at the time of catalog publication (subject to change).

<u>Palomar College Course</u>	<u>CAN Course</u>
ACCT 103+104	CAN BUS 2
ACCT 108	CAN BUS 4
ACCT 103+104+108	CAN BUS SEQ A
AJ 100	CAN AJ 2
ANTH 100	CAN ANTH 2
ANTH 105	CAN ANTH 4
ANTH 110	CAN ANTH 6
ART 102	CAN ART 8
ART 104	CAN ART 14
ART 105	CAN ART 16
ART 120	CAN ART 24
ART 130	CAN ART 20
ART 135	CAN ART 6
ART 165	CAN ART 2
ART 166	CAN ART 4
ART 165+166	CAN ART SEQ A
ART 220	CAN ART 10
ART 260	CAN ART 12
BIOL 100 or 101+101L	CAN BIOL 2
BOT 100	CAN BIOL 6
BUS 115	CAN BUS 8
BUS 117	CAN BUS 12
CHEM 100	CAN CHEM 6
CHEM 105	CAN CHEM 8
CHEM 100+105	CAN CHEM SEQ B
CHEM 110+110L	CAN CHEM 2
CHEM 115+115L	CAN CHEM 4
CHEM 110+110L+115+115L	CAN CHEM SEQ A
CHEM 210	CAN CHEM 12
CHIN 101+102	CAN CHIN SEQ A
COMM 100	CAN JOUR 4
CSIS 220	CAN CSCI 12
ECON 101	CAN ECON 2
ECON 102	CAN ECON 4
ENG 100	CAN ENGL 2
ENG 205	CAN ENGL 4
ENG 100+205	CAN ENGL SEQ A
ENG 210	CAN ENGL 8
ENG 211	CAN ENGL 10
ENG 210+211	CAN ENGL SEQ B
ENG 225	CAN ENGL 14
ENG 226	CAN ENGL 16

<u>Palomar College Course</u>	<u>CAN Course</u>	<u>Palomar College Course</u>	<u>CAN Course</u>
ENG 225+226	CAN ENGL SEQ C	MICR 200	CAN BIOL 14
ENGR 210	CAN ENGR 12	MUS 105	CAN MUS 2
ENGR 235	CAN ENGR 8	MUS 106	CAN MUS 4
ENGR 245	CAN ENGR4	MUS 105+106	CAN MUS SEQ A
FASH 105	CAN FCS 20	PHIL 100	CAN PHIL 4
FASH 110	CAN FCS 6	PHIL 101	CAN PHIL 2
FCS 165 OR HE 165	CAN FCS 2	PHIL 120	CAN PHIL 6
FREN 101	CAN FREN 2	PHOT 100	CAN ART 18
FREN 102	CAN FREN 4	PHYS 120	CAN PHYS 2
FREN 101+102	CAN FREN SEQ A	PHYS 121	CAN PHYS 4
FREN 201	CAN FREN 8	PHYS 120+121	CAN PHYS SEQ A
FREN 202	CAN FREN 10	PHYS 230	CAN PHYS 8
FREN 201+202	CAN FREN SEQ B	PHYS 231	CAN PHYS 12
GEOG 100	CAN GEOG 2	PHYS 232	CAN PHYS 14
GEOG 105	CAN GEOG 4	PHYS 230+231+232	CAN PHYS SEQ B
GEOL 100	CAN GEOL 6	PSYC 100	CAN PSY 2
GEOL 100+100L	CAN GEOL 2	PSYC 205 OR SOC 205	CAN PSY 6
GERM 101	CAN GERM 2	PSYC 210	CAN PSY 10
GERM 102	CAN GERM 4	SOC 100	CAN SOC 2
GERM 101+102	CAN GERM SEQ A	SOC 110	CAN SOC 4
GERM 201	CAN GERM 8	SPAN 101	CAN SPAN 2
GERM 202	CAN GERM 10	SPAN 102	CAN SPAN 4
GERM 201+202	CAN GERM SEQ B	SPAN 101+102	CAN SPAN SEQ A
HIST 101	CAN HIST 8	SPAN 201	CAN SPAN 8
HIST 102	CAN HIST 10	SPAN 202	CAN SPAN 10
HIST 101+102	CAN HIST SEQ B	SPAN 201+202	CAN SPAN SEQ B
HIST 105	CAN HIST 2	SPCH 100	CAN SPCH 4
HIST 106	CAN HIST 4	SPCH 105	CAN SPCH 6
HIST 105+106	CAN HIST SEQ A	SURV 100+101	CAN ENGR 10
JAPN 101+102	CAN JAPN SEQ A	ZOO 100	CAN BIOL 4
JOUR 101	CAN JOUR 2	ZOO 200	CAN BIOL 10
MATH 100	CAN MATH 2	ZOO 203	CAN BIOL 12
MATH 105	CAN MATH 4	ZOO 200+203	CAN BIOL SEQ B
MATH 110	CAN MATH 10		
MATH 115	CAN MATH 8		
MATH 120	CAN STAT 2		
MATH 130	CAN MATH 30		
MATH 135	CAN MATH 16		
MATH 140	CAN MATH 18		
MATH 141	CAN MATH 20		
MATH 140+141	CAN MATH SEQ B		
MATH 200	CAN MATH 26		
MATH 205	CAN MATH 22		
MATH 140+141+205	CAN MATH SEQ C		
MATH 206	CAN MATH 24		

Accounting (ACCT) See also Business Education

Contact the Business Education Department for further information, (760) 744-1150, ext. 2488.

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAMS OF STUDY

Accounting

Equips students with the skills necessary for employment as a full charge bookkeeper or an accounting technician.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
ACCT 103 Financial Accounting	4
ACCT 104 Acct Spreadsheet Lab	1
ACCT 105 and Income Tax	3
ACCT 106 or State Income	1
ACCT 107 Taxation of Business Entities	4
ACCT 108 Managerial Accounting	4
ACCT 110 QuickBooks	2
ACCT 115 Sales/Payroll Tax/and Employee Benefits	2
ACCT 120 Financial Statement Analysis	3
BUS 110 Business Mathematics	3
BUS 115 Business Law	3
BUS 125 Business English, or	
BUS 205 Business Writing	3
CSIS 105 Computer Concepts/Microcomputer Applications, or	
CSIS/R CSIS 120 Microcomputer Applications	3
TOTAL UNITS	32

Recommended Electives: BUS 100, 116, 140; OIS 101, 115; CE 100

Bookkeeping/Accounting Clerk

Provides a program to prepare the student for an entry-level Bookkeeping/Accounting Clerk position.

CERTIFICATE OF PROFICIENCY

Program Requirements	Units
ACCT 103 and Financial Accounting	4
ACCT 104 or Acct Spreadsheet Lab	1
BUS 105 Bookkeeping Fundamentals	3
ACCT 110 QuickBooks	2
ACCT 115 Sales Tax, Payroll Taxes, and Employee Benefits	2
TOTAL UNITS	7 - 9

COURSE OFFERINGS

ACCT 103 Financial Accounting (4)
<i>4 hours lecture</i>
Corequisite: ACCT 104
Transfer acceptability: CSU; UC; ACCT 103+104=CAN BUS 2
Financial accounting theory, principles, and procedures. Application of theory and practice to the accounting cycle and to systems design. An emphasis on both the preparer and the information user will be stressed.

ACCT 104 Accounting Spreadsheet Laboratory (1)
<i>2 hours lecture/laboratory</i>

Corequisite: ACCT 103

Transfer acceptability: CSU; ACCT 103+104=CAN BUS 2

Application of fundamental spreadsheet concepts, principles, and commands in working with templates and modeling problems in accounting principles.

ACCT 105 Income Tax (3)
<i>3 hours lecture</i>

Transfer acceptability: CSU

Instruction on income tax legislation and procedure, income tax problems, and practice in completing forms as required by the Internal Revenue Service.

ACCT 106 State Income Tax (1)
<i>1 hour lecture</i>

Prerequisite: Completion of, or concurrent enrollment in, ACCT 105

Transfer acceptability: CSU

A study of the major differences between the State and Federal income tax regulations.

ACCT 107 Taxation of Business Entities (4)
<i>4 hours lecture</i>

Transfer acceptability: CSU

Taxation from a business entities approach including business deductions, losses, property transactions, and tax credits. Topics will include rules related to corporations, partnerships, and S corporations.

ACCT 108 Managerial Accounting (4)
<i>4 hours lecture</i>

Prerequisite: ACCT 103

Transfer acceptability: CSU; UC; CAN BUS 4

Accounting theory, principles, and procedures for financial statement analysis, decentralized operations, cost concepts, cost accounting, budgeting, standard costing, cost profit volume analysis, accounting control, differential analysis, capital budgeting, variable and absorption costing, responsibility accounting, capital investment analysis, and income taxes.

ACCT 110 QuickBooks (2)
<i>4 hours lecture/laboratory</i>

Prerequisite: ACCT 103 or 203, or BUS 105

Transfer acceptability: CSU

Applying the computer in the study of accounting principles with emphasis on planning and analysis. Students prepare data and enter accounting transactions, which are used as input for QuickBooks Pro in order to yield the various accounting statements as output.

ACCT 115 Sales Tax, Payroll Taxes, and Employee Benefits (2)
<i>2 hours lecture</i>

Transfer acceptability: CSU

Provides the students with a knowledgeable background in all phases and aspects of sales tax and payroll accounting. Surveys the various tax procedures required by the employer and employee in filing the correct forms for social security, and federal and state income tax returns. Worker's compensation and state disability benefits will be discussed, as well as pensions, health plans, vacation and sick leave, and other employee benefits.

ACCT 120 Analysis of Financial Statements (3)
<i>3 hours lecture</i>

Prerequisite: ACCT 103

Transfer acceptability: CSU

Exploration of the characteristics of financial statements and analysis of reported results from such statements. How to apply ratios to financial statements and to interpret outcomes in order to draw various inferences and/or conclusions from the results.

ACCT 197 Accounting Topics (.5-4)
 Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times
Transfer acceptability: CSU
 Topics in Accounting. See Class Schedule for specific topic offered. Course title will designate subject covered.

ACCT 203 Survey of Accounting (4)
 4 hours lecture
Corequisite: ACCT 204
Transfer acceptability: CSU
 Introduction to the core primary accounting areas: financial, managerial, taxation, auditing, and accounting information systems. Each area is introduced in terms of its background, conceptual basis, and application in the business environment.

ACCT 204 Financial/Managerial Accounting Spreadsheet Lab (1)
 2 hours lecture/laboratory
Corequisite: ACCT 203
Transfer acceptability: CSU
 Application of fundamental spreadsheet concepts, principles, and commands in working with templates and modeling problems in financial and managerial accounting problems.

ACCT 205 Cost Accounting (3)
 3 hours lecture
Prerequisite: ACCT 108
Transfer acceptability: CSU
 A study of the fundamental principles of cost accounting, including the elements of production costs, cost estimations, byproducts and joint products, spoilage and scrap materials, and systems of cost distribution such as standard cost, job order, and process flow.

Administration of Justice (AJ)

Contact Public Safety Programs for further information, (760) 744-1150, ext. 1722. For transfer information, consult a Palomar College counselor.

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAMS OF STUDY

Administration of Justice – General

This program prepares students for a career in the criminal justice system or private security services. The program will give students general knowledge and skills in theory, principles, and techniques of law enforcement agencies and private security services.

A.A. DEGREE MAJOR*

Program Requirements		Units
AJ 100	Introduction To Criminal Justice	3
AJ 101	Criminal Evidence	3
AJ 102	Criminal Procedures	3
AJ 103	Community Relations	3
AJ 104	Criminal Law	3
AJ 106	Police Ethics	3
AJ 180	Criminology	3
AJ 280	Internship - A Service Learning Experience	3
Electives (Select 12 units)		
AJ 50	POST Perishable Skills	.5
AJ 51	First Aid/CPR Update	.5
AJ 52	Racial Profiling	.5
AJ 53	Instructor Development	2.5

AJ 65	Preparation for Law Enforcement	3
AJ 72	Police Academy Orientation and Leadership	3
AJ 97	Topics In Administration Of Justice	.5 - 20
AJ 140	Criminal Justice in the 21ST Century Field Study	1.5
AJ 175	Narcotics	3
AJ 197	Topics In Administration Of Justice	.5 - 6
CHEM 109	Forensic Chemistry	3

TOTAL UNITS 36

***Administration of Justice – General A.A. Degree Major pending approval by Chancellor’s Office at time of catalog publication.**

Administration of Justice - Homeland Security

This program prepares students for a career in the public or private job sector providing security services to institutions, government entities (Department of Homeland Security and Transportation Security Administration), and the general public. This program will give students general knowledge and skills of Homeland Security.

A.A. DEGREE MAJOR*

Program Requirements		Units
AJ 100	Introduction To Criminal Justice	3
AJ 101	Criminal Evidence	3
AJ 102	Criminal Procedures	3
AJ 103	Community Relations	3
AJ 104	Criminal Law	3
AJ 106	Police Ethics	3
AJ 151	Introduction to Terrorism	3
AJ 152	Weapons of Mass Destruction	3
AJ 153	Issues in Homeland Security	3
AJ 180	Criminology	3
AJ 280	Internship - A Service Learning Experience	3

TOTAL UNITS 33

It is recommend that a student working towards an associate degree in Homeland Security take two of the following courses: POSC 110; SOC 110; and/or PSYC 120.

***Administration of Justice – Homeland Security A.A. Degree Major pending approval by Chancellor’s Office at time of catalog publication.**

Administration of Justice – Investigations

This program prepares students for a career in the public or private sector providing general knowledge and skills in theory, principles, and techniques of forensic science and investigation in the criminal justice system.

A.A. DEGREE MAJOR*

Program Requirements		Units
AJ 100	Introduction To Criminal Justice	3
AJ 101	Criminal Evidence	3
AJ 102	Criminal Procedures	3
AJ 103	Community Relations	3
AJ 104	Criminal Law	3
AJ 106	Police Ethics	3
AJ 110	Basic Criminal Investigation	3
AJ 141	Enforcement Psychology	3
AJ 180	Criminology	3
AJ 210	Basic Crime Scene Forensic Science	3
AJ 211	Fingerprint Identification	3
AJ 280	Internship - A Service Learning Experience	3

TOTAL UNITS 36

***Administration of Justice – Investigations A.A. Degree pending approval by Chancellor's Office at time of catalog publication.**

Administration of Justice–Law Enforcement

This program prepares students with the general knowledge and skills required for a career in municipal and county law enforcement as a sworn peace officer.

A.A. DEGREE MAJOR

Program Requirements		Units
AJ 100	Introduction to Criminal Justice	3
AJ 101	Criminal Evidence	3
AJ 102	Criminal Procedures	3
AJ 103	Community Relations	3
AJ 104	Criminal Law	3
AJ 106	Police Ethics	3
AJ 115	Patrol Procedures	3
AJ 131	Juvenile Justice	3
AJ 141	Enforcement Psychology	3
AJ 180	Criminology	3
AJ 280	Internship – A Service Learning Experience	3
TOTAL UNITS		33

Basic Police Academy

The Basic Police Academy Certificate of Achievement is a series of courses which when combined satisfy mandated training requirements for a California Basic Peace Officers Standards and Training (P.O.S.T.) certificate. The program is certified and prepares the student for work as a law enforcement officer in the State of California.

Admission to the program is by special application. To be eligible for consideration, the applicant must (1) be free of felony conviction or conviction of a misdemeanor which prohibits possession of a firearm, (2) be eligible for English 50, (3) possess a valid driver's license, (4) pass written, oral and physical fitness examinations, (5) pass a medical examination, (6) be 18 years old, and (7) pass Department of Justice clearance.

In addition to passing the required college examinations, the student must obtain passing scores on each P.O.S.T. Learning Domain Examination, and all skills/lab portions of the Academy.

Each block must be completed in sequential order within the same Academy.

CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
AJ 90	Basic Police Academy I	20
AJ 91	Basic Police Academy II	18.5
AJ 92	Basic Police Academy III	19
TOTAL UNITS		57.5

COURSE OFFERINGS

Courses numbered under 100 are not intended for transfer credit.

AJ 50	POST Perishable Skills	(.5)
<i>1½ hours laboratory</i>		
Prerequisite: Must be an active full time peace officer or active duty reserve peace officer and currently employed by a law enforcement agency.		
Recommended preparation: Law enforcement field experience		
Note: Credit/No Credit grading only; may be taken 4 times		
A POST-approved perishable skills course for active full time peace officers or active reserve peace officers that are currently employed by a law enforcement agency. This course covers tactical firearms, driver training/awareness, arrest and control, tactical communications, and interpersonal communication skills. This course meets the POST Continuing Professional Training (CPT) requirements.		

AJ 51	First Aid/CPR Update	(.5)
<i>½ hour lecture</i>		
Prerequisite: Must be an active full time peace officer or active reserve peace officer and currently employed by a law enforcement agency.		
Note: Credit/No Credit grading only; may be taken 4 times		
A POST-approved perishable skills course for active full time peace officers or active reserve peace officers that are currently employed by a law enforcement agency. This course is an overview of emergency medical care terminology and procedures required for peace officers when responding to victims where assessment of treatment and possible basic life support maneuvers will be required.		

AJ 52	Racial Profiling	(.5)
<i>½ hour lecture</i>		
Prerequisite: Must be an active full time peace officer or active reserve peace officer and currently employed by a law enforcement agency		
Note: Credit/No Credit grading only; may be taken 4 times		
A POST-approved course for active full time peace officers or active reserve peace officers that are currently employed by a law enforcement agency. This course clarifies what constitutes racial profiling, conceptually and legally.		

AJ 53	Instructor Development	(2.5)
<i>2½ hours lecture</i>		
Prerequisite: Must have successfully completed a POST Certified Basic Police Academy, and/or is a subject matter expert on a topic that is taught in the Basic Course		
Note: Credit/No Credit grading only; may be taken 4 times		
A POST-approved course that is designed to develop competency in the following areas: role and responsibility of the basic course instructor, adult learning principles, lesson planning, presentation skills, facilitation skills, learning resources and evaluation methods. This program consists of 40 hours of instruction and competency demonstration.		

AJ 65	Preparation for Law Enforcement	(3)
<i>3 hours lecture</i>		
Note: Credit/No Credit grading only		
This course will provide an educational overview of the hiring process of law enforcement agencies and prepare the serious candidate for law enforcement employment to successfully complete the pre-employment testing and screening process. It will take the student from the written test all the way through to the oral interview.		

AJ 72	Police Academy Orientation and Leadership	(3)
<i>3 hours lecture</i>		
Note: Credit/No Credit grading only		
The development of critical thinking and physical fitness skills that lead to successful completion of the Police Academy program.		

AJ 75	Spanish for Law Enforcement	(3)
<i>3 hours lecture</i>		
Basic conversational Spanish with emphasis on law enforcement situations.		

AJ 90	Basic Police Academy I	(20)
<i>18½ hours lecture; 4½ hours laboratory</i>		
Note: May not be taken for Credit/No Credit Grading. May be taken 4 times.		
Block I of the Basic Police Academy Certificate of Achievement is a series of major objectives which when combined satisfy mandated training requirements for California Basic Peace Officers Standards and Training (P.O.S.T.) certificate. The program is certified and prepares the student for work as a law enforcement officer in the State of California.		

AJ 91	Basic Police Academy II	(18.5)
<i>15½ hours lecture; 9 hours laboratory</i>		
Prerequisite: Successful completion of AJ 90 with 'C' or better.		
Note: May not be taken for Credit/No Credit Grading. May be taken 4 times.		
Block 2 of the Basic Police Academy Certificate of Achievement is a continuation in a series of major objectives which when combined satisfy mandated training requirements for California Basic Peace Officers Standards and Training (P.O.S.T.) certificate. The program is certified and prepares the student for work as a law enforcement officer in the State of California.		

- AJ 92 Basic Police Academy III (19)**
 16 hours lecture; 9 hours laboratory
Prerequisite: Successful completion of AJ 91 with 'C' or better.
Note: May not be taken for Credit/No Credit Grading. May be taken 4 times.
 Block 3 of the Basic Police Academy Certificate of Achievement is the culmination of a series of major objectives which when combined satisfy mandated training requirements for California Basic Peace Officers Standards and Training (P.O.S.T.) certificate. The program is certified and prepares the student for work as a law enforcement officer in the State of California.
- AJ 97 Topics in Administration of Justice (.5 - 20)**
 Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory or lecture/laboratory may be scheduled by the department. Refer to class schedule.
Note: May not be taken for Credit/No Credit Grading. May be taken 4 times.
 Topics in Administration of Justice. See Class Schedule for specific topic offered. Course title will designate subject covered.
- AJ 100 Introduction to Criminal Justice (3)**
 3 hours lecture
Transfer acceptability: CSU; UC; CANAJ 2
 A comprehensive overview of the American Criminal Justice System. History, theories, and philosophy of the three parts of the criminal justice system including law enforcement, courts, and corrections. Relevant sociological and economic issues, past and present, will be addressed.
- AJ 101 Criminal Evidence (3)**
 3 hours lecture
Transfer acceptability: CSU
 The kinds and degrees of evidence and the rules governing the admissibility of evidence in court.
- AJ 102 Criminal Procedures (3)**
 3 hours lecture
Transfer acceptability: CSU
 Review of the criminal justice system; criminal procedures from incident to final disposition; principles of constitutional, federal, and state laws as they apply to, and affect the administration of justice.
- AJ 103 Community Relations (3)**
 3 hours lecture
Transfer acceptability: CSU; UC
 A study of the role of law enforcement and justice system participants. The expectations and interrelationships between the various agencies and the public view/role toward establishing positive relationships. An overview of communication skills and the interaction between the criminal justice system and the multicultural society will be presented. Hate crimes, as well as prejudice, bias, and discrimination will be addressed.
- AJ 104 Criminal Law (3)**
 3 hours lecture
Transfer acceptability: CSU; UC
 Historical development, philosophy, and constitutional provisions of law. Definitions, classification of crimes, study of case law, and concepts of the law as a social force.
- AJ 106 Police Ethics (3)**
 3 hours lecture
Transfer acceptability: CSU
 Designed to enable the student to explore and understand the potential ethical dilemmas that may confront administration of justice professionals. Morality, ethics, justice and law will be studied from the perspective of a criminal justice professional.
- AJ 110 Basic Criminal Investigation (3)**
 3 hours lecture
Transfer acceptability: CSU
 Fundamentals of investigation, search, collection and preservation of physical evidence, scientific aids, modus operandi, source of information, interviews and interrogations, and incident reporting.
- AJ 115 Patrol Procedures (3)**
 3 hours lecture
 Responsibilities, techniques, and methods of police patrol.
- AJ 131 Juvenile Justice (3)**
 3 hours lecture
 The organization, functions, and jurisdiction of juvenile agencies; the processing and detention of juveniles; juvenile case disposition; juvenile statutes and court procedures. Includes youth subcultures and delinquency and the varied philosophies underlying their existence.
- AJ 140 Criminal Justice in the 21st Century--Field Study (1.5)**
 4½ hours laboratory
Note: May be taken 4 times
 This course will be a study of local, state and federal courts, correctional institutions and law enforcement agencies. Knowledge will be obtained by site visitations, personal interviews and tours.
- AJ 141 Enforcement Psychology (3)**
 3 hours lecture
 Designed to assist the peace officer's understanding of the psychological dilemma of law enforcement. Victimology, diversity, politics, and the tactical aspect of the criminal justice system will be evaluated from a psychological perspective.
- AJ 151 Introduction to Terrorism (3)**
 3 hours lecture
 This course is designed to educate the student in the enforcement issues and future of terrorism around the world. Domestic and international terrorism will be covered. This course will assist the student in obtaining employment in the field of Law Enforcement and Homeland Security.
- AJ 152 Weapons of Mass Destruction (3)**
 3 hours lecture
 A description of actions required in response to a Weapons of Mass Destruction (WMD) event. Instructions for all levels of responders. Discussions include early warning systems, intelligence gathering, roles of various law enforcement agencies, public health threats, and identification of terrorist individuals and groups.
- AJ 153 Issues in Homeland Security (3)**
 3 hours lecture
 A description of the Homeland Security Agency, its mission, structure and roles. Discussions include future planning and strategies that address intelligence gathering and assessment of information from domestic and international threats.
- AJ 175 Narcotics (3)**
 3 hours lecture
 A survey of laws and specific characteristics pertaining to hallucinogens, narcotics, marijuana, alcohol, and poisonous substances. It is designed to give the student conceptual insight into contemporary problems of vice, drugs, and legal social issues related to dangerous drugs.
- AJ 180 Criminology (3)**
 3 hours lecture
Transfer acceptability: CSU
 A general study of crime, the science of crime and criminal behavior, the forms of criminal behavior and the causes of crime. Crime theories and sociological causes of crime, types of crime, and issues of criminal behavior will also be addressed.
- AJ 197 Topics in Administration of Justice (.5-6)**
 Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times
Transfer acceptability: CSU
 Topics in Administration of Justice. See Class Schedule for specific topic offered. Course title will designate subject covered.

AJ 210 Basic Crime Scene Forensic Science (3)
 3 hours lecture
 Introduces various specialized disciplines including the crime lab functions, forensic instrumentation, forensic photography, crime scene processing, drug analysis, hair and fiber analysis, questioned documents, and fingerprint usage.

AJ 211 Fingerprint Identification (3)
 3 hours lecture
 This course reviews the history and application of fingerprinting for personal identification including recognition of patterns and classification of fingerprints. The student will also experience practical problems involving locating, developing, lifting and photographing latent prints. Courtroom testimony and exhibits will also be covered.

AJ 212 Forensic Photography (3)
 3 hours lecture
 Techniques utilized in police photography are outlined and explored including crime scene and traffic collision photography, macro photography, microphotography, black/white and color photography, and photography equipment. Also discussed are topics such as low light or existing light photography, high speed film shooting, use of alternative light sources in photography, aerial photography, video recording, and presentation of photographic exemplars in court or trial.

AJ 280 Internship - A Service Learning Experience (3)
 9 hours laboratory
Transfer acceptability: CSU
 Students are placed in a law enforcement agency or civic organization internship. The student observes the functions of the organization to better prepare them for future employment within the field of local, state, county, and federal agencies.

Aeronautical Sciences (AERO)

Contact the Earth Sciences Department for further information, (760) 744-1150, ext. 2512. For transfer information, consult a Palomar College counselor.

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAMS OF STUDY

Aeronautical Operations and Management

For students interested in the business or piloting aspects of aviation. Transfers to some four year programs in this field.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
AERO 100 Introduction to Aeronautical Sciences	3
AERO 105 Basic Pilot Ground School	3
AERO 115 Air Traffic Control	3
AERO 120 Aviation Weather	3
BUS 205 Business Writing	3
ECON 101 Principles of Economics (Macro)	3
ECON 102 Principles of Economics (Micro)	3

Elective Courses (Select 15 units minimum)

ACCT 103 and Financial Accounting	4
ACCT 104 Accounting Spreadsheet Laboratory	1
AERO 106 Commercial Pilot Ground School	3
AERO 107 Instrument Pilot Ground School	3
AERO 108 Flight Instructor Ground School	3
AERO 125 Instrument Simulator Lab	1.5
AERO 205 Principles of Aerodynamics	3
AERO 210 Aviation Safety and Accident Investigation	3
AERO 220 Regional Airline Aircraft Systems	3

AERO 260 ATP/Dispatcher Ground School	3
BUS 115 Business Law	3
BUS 155 Marketing	3
BMGT 110 Human Resource Management	3
BMGT 115 Organizational Theory and Design	3
CSIS 105 Computer Concepts/Microcomputer Apps.	3
GEOG 110 Meteorology: Weather and Climate	3
MATH 115 Trigonometry	3
MATH 120 Elementary Statistics	3
PHYS 120 General Physics	4
PHYS 121 General Physics	4
CE 100 Cooperative Education	1,2,3,4

TOTAL UNITS 36

Flight training is the sole responsibility of each student and is contracted with an F.A.A. approved flight school at the student's own expense. The Palomar Community College District accepts no responsibility or liability for the student's flight training program.

Aircraft Commercial Pilot

Prepares students for employment as commercial pilots in air taxi and other field related flying operations. Transfers to some four year programs in this field.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
AERO 75 Private Pilot Certification	2
AERO 80 Instrument Rating Certification	2
AERO 85 Commercial Pilot Certification	3
AERO 100 Introduction to Aeronautical Sciences	3
AERO 105 Basic Pilot Ground School	3
AERO 106 Commercial Pilot Ground School	3
AERO 107 Instrument Pilot Ground School	3
AERO 110 Basic Pilot Flight Procedures	2
AERO 115 Air Traffic Control	3
AERO 120 Aviation Weather	3
AERO 125 Instrument Simulator Laboratory	1.5
AERO 140 Aviation Math/ Modern Navigation	3
AERO 205 Principles of Aerodynamics	3
AERO 210 Aviation Safety and Accident Investigation	3
AERO 215 Complex Aircraft Systems and Propulsion	3

TOTAL UNITS 40.5

Recommended Electives: AERO 108, 260; BUS 205; GEOG 110

Flight training is the sole responsibility of each student and is contracted with an F.A.A. approved flight school at the student's own expense. The Palomar Community College District accepts no responsibility or liability for the student's flight training program.

COURSE OFFERINGS

Courses numbered under 100 are not intended for transfer credit.

AERO 75 Private Pilot Certification (2)

Note: Credit/No Credit grading only

Upon presentation of a Private Pilot Certificate, the student will be given credit (no grade). Flight training is to be completed off campus with an F.A.A. certified flight instructor of the student's choice and at the student's own expense. The Palomar Community College District accepts no responsibility or liability for the flight training obtained from private instructors. The student should register for this course in the semester during which the training is to be completed.

- AERO 80 Instrument Rating Certification (2)**
Note: Credit/No Credit grading only
 Upon presentation of an Instrument Rating, the student will be given credit (no grade). Flight training is to be completed off campus with an F.A.A. certified flight instructor of the student's choice and at the student's own expense. The Palomar Community College District accepts no responsibility or liability for the flight training obtained from private instructors. The student should register for this course in the semester during which the training is to be completed.
- AERO 85 Commercial Pilot Certification (3)**
Note: Credit/No Credit grading only
 Upon presentation of a Commercial Pilot Certificate, the student will be given credit (no grade). Flight training is to be completed off campus with an F.A.A. certified flight instructor of the student's choice and at the student's own expense. The Palomar Community College District accepts no responsibility or liability for the flight training obtained from private instructors. The student should register for this course in the semester during which the training is to be completed.
- AERO 90 Multi Engine Rating Certification (1)**
Note: Credit/No Credit grading only
 Upon presentation of a Multi Engine Rating, the student will be given credit (no grade). Flight training is to be completed off campus with an F.A.A. certified flight instructor of the student's choice and at the student's own expense. The Palomar Community College District accepts no responsibility or liability for the flight training obtained from private instructors. The student should register for this course in the semester during which the training is to be completed.
- AERO 100 Introduction to Aeronautical Sciences (3)**
 3 hours lecture
Transfer acceptability: CSU
 A survey of the aerospace field including the functions and operations of various federal and state regulating aviation agencies and airport based companies such as air carrier, general aviation, aviation maintenance, flight schools, and other major occupational and supportive areas.
- AERO 105 Basic Pilot Ground School (3)**
 3 hours lecture
Transfer acceptability: CSU
 A study of Federal Aviation Regulations, flight data, aerodynamics, weather and navigation, radio communications, aircraft and engine operation, flight instruments, and aircraft performance. Prepares the student for the Federal Aviation Administration's Private Pilot written examination.
- AERO 106 Commercial Pilot Ground School (3)**
 3 hours lecture
Prerequisite: Private Pilot Certificate or AERO 105 with concurrent or prior flight training
Transfer acceptability: CSU
 A comprehensive study of aircraft performance, Federal Aviation Regulations, navigation, flight charts and graphs, radio navigation and communications, meteorology, emergency procedures, aerodynamics, flight instruments, and multi engine procedure. Prepares the student for the Federal Aviation Administration's Commercial Pilot written examination.
- AERO 107 Instrument Pilot Ground School (3)**
 3 hours lecture
Prerequisite: Private Pilot Certificate or AERO 105 with concurrent or prior flight training
Transfer acceptability: CSU
 The rules and regulations for instrument flight, interpretation of flight instruments, air navigation, meteorology, instrument flight techniques, air traffic control, and flight planning. Prepares the student for the Federal Aviation Administration's Instrument written examination.
- AERO 108 Flight Instructor Ground School (3)**
 3 hours lecture
Prerequisite: AERO 106 and 107
Transfer acceptability: CSU
- Learning characteristics, teaching techniques, student evaluation, instructor duties/responsibilities, and all private and commercial pilot maneuvers. Prepares the student for the Federal Aviation Administration's written and practical tests for flight instructor airplane.
- AERO 110 Basic Pilot Flight Procedures (2)**
 2 hours lecture
Prerequisite: Completion of, or concurrent enrollment in, AERO 105
Transfer acceptability: CSU
 A classroom study of procedures required for the private pilot practical test. Includes discussion of cross country flight planning, radio navigation, communication procedures, controlled airspace, and airport operations.
- AERO 115 Air Traffic Control (3)**
 3 hours lecture
Prerequisite: AERO 105
Transfer acceptability: CSU
 The national airspace system and the handling of air traffic within this area. Emphasis is placed on the operation of Federal Aviation Administration controlling agencies.
- AERO 120 Aviation Weather (3)**
 3 hours lecture
Transfer acceptability: CSU
 Basic principles relating to weather with particular emphasis placed upon the relationship of weather to aviation. Practical instruction is given in the use and interpretation of weather reports, forecasts, and charts.
- AERO 125 Instrument Simulator Laboratory (1.5)**
 1 hour lecture 2 hours laboratory
Prerequisite: Private Pilot Certificate
Note: May be taken 3 times for increased proficiency by utilizing more advanced lesson plans and taped lesson plans in the lab.
Transfer acceptability: CSU
 Instrument flight including VOR navigation, holding patterns, and ILS, LOC, NDB, and VOR approaches through use of a ground trainer.
- AERO 140 Aviation Mathematics and Modern Navigation Systems (3)**
 3 hours lecture
Transfer acceptability: CSU
 The nature and properties of numbers and arithmetic operations utilizing the flight computer for improvement in operational efficiency and applications involving all forms of air navigation. Basic principles of modern navigation systems such as Loran, INS/IRS, R NAV, TCAS, GPWS, Flight Directors, and GPS will be examined.
- AERO 197 Aeronautical Sciences Topics (.5-4)**
 Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times.
 Topics in Aeronautical Sciences. See class schedule for specific topic covered. Course title will designate subject covered.
- AERO 205 Principles of Aerodynamics (3)**
 3 hours lecture
Transfer acceptability: CSU
 Introduction to the theory of flight; applications of the basic laws of physics to the principles of flight. Aircraft design is considered with respect to airfoils, wings, viscous effects, propellers, and aircraft performance.
- AERO 210 Aviation Safety and Accident Investigation (3)**
 3 hours lecture
Prerequisite: AERO 105 or Private Pilot Certificate
Transfer acceptability: CSU
 Accident prevention principles through a study of recent mishaps. Pilot physical and psychological factors and their role in mishaps. A study of crash survival and post crash survival techniques. Fundamentals of mishap investigation and reporting.

AERO 215 Complex Aircraft Systems and Propulsion (3)
3 hours lecture

Prerequisite: AERO 105 or Private Pilot Certificate
Transfer acceptability: CSU
Turbochargers, turboprop and turbojet engines and their operation. Electrical, pressurization, hydraulic, and fuel systems will be examined.

AERO 220 Regional Airline Aircraft Systems (3)
3 hours lecture

Prerequisite: AERO 105
Transfer acceptability: CSU
Engine, fuel, hydraulic, electrical, flight control, pressurization, ice protection, pneumatic, warning, and navigation systems of a typical regional airline jet will be examined. Aircraft performance will be calculated.

AERO 260 ATP/Dispatcher Ground School (3)
3 hours lecture

Prerequisite: Commercial Pilot Certificate
Transfer acceptability: CSU
Federal Aviation Regulations, aerodynamics, performance, flight procedures, aviation weather, and aeromedical factors as they apply to the operation and dispatch of air carrier transport aircraft. Prepares the student for the Federal Aviation Administration's Airline Transport Pilot or Dispatcher written/knowledge examination.

AERO 295 Directed Study in Aeronautical Sciences (1,2,3)
3, 6, or 9 hours field work

Prerequisite: AERO 100 and approval of project proposal
Note: May be taken 4 times
Individual study in field or library within the field of air transportation.

Africana Studies (AS)

See also Multicultural Studies

Contact the Multicultural Studies Department for further information, (760) 744-1150, ext. 2206. For transfer information, consult a Palomar College counselor.

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAM OF STUDY

Africana Studies

Provides background for upper division course work in Africana Studies and a complementary base for students interested in many areas and professions including: Business Administration, Child Development, Law Enforcement, General Studies, Journalism, Liberal Arts and Sciences, Nursing, Radio and Television.

CERTIFICATE OF PROFICIENCY

Program Requirements	Units
AS 100 Intro/Hist Legacy/Africana	3
AS 115 Intro/Comparative Africana Lit	3
AS 116 Intro Literature/Arts Africana	3
AS 120 Africana Social Institutions	3
AS 125 Africana People/World Politics	3
TOTAL UNITS	15

COURSE OFFERINGS

AS 100 Introduction to the Historical Legacy of Africana Peoples (3)

3 hours lecture
Transfer acceptability: CSU; UC
The ancient and modern histories and civilizations of Africana peoples. An emphasis on the Africana presence and impact on global historical processes.

AS 101 African American History I (3)
3 hours lecture

Note: This course plus AS 102 meets the State requirement in American History and Institutions.
Transfer acceptability: CSU; UC - maximum credit for one pair: AS 101-102 or HIST 101-102

African Americans in the history of the United States from Africa through Reconstruction with particular emphasis on the trans Atlantic slave trade; the colonial period; the Revolution; constitutional development; development of the plantation system, slavery on and off the plantation; the free Negro in the North and South; westward expansion and frontier influences; emergence of sectionalism, the anti slavery movement; impact of, and contributions to, the Civil War; Reconstruction and post war adjustments; Black leadership; and the antebellum legacy.

AS 102 African American History II (3)
3 hours lecture

Note: This course plus AS 101 meets the State requirement in American History and Institutions.
Transfer acceptability: CSU; UC - maximum credit for one pair: AS 101-102 or HIST 101-102
Cultural, economic, and political development of African Americans in the United States since Reconstruction. Emphases on post Civil War difficulties; the Westward Movement; expressions of cultural identity; industrial development; impact of World Wars I and II on urbanization and social mobility; expansion of government activity; Civil Rights Era and modern militancy; Black leadership, and the United States as a world power.

AS 110 The Black and the United States Political System (3)
3 hours lecture

Transfer acceptability: CSU; UC - maximum credit for one course: AS 110, AIS 102, CS 102
Surveys the role of Black people in the United States political system and institutions. Examines the structure and functions of the American political system in relation to issues which affect the American people as a whole and minority groups in particular. A description and analysis of Federal, State, and local government organizations as they relate to the group will be emphasized.

AS 115 Introduction to Comparative Africana Literature (3)
3 hours lecture

Transfer acceptability: CSU; UC
Selected literatures of Africana peoples. Examination of the principles of aesthetics, theme, philosophy and religion, and the impact of cross cultural exchanges on the literature.

AS 116 Introduction to the Literature and Arts of Africana Civilizations (3)
3 hours lecture

Transfer acceptability: CSU; UC
Continuum in the development of African and Africana literature and other arts from Ancient Africa to the present. Cross cultural exchanges affecting artistic and literary evolution.

AS 120 Introduction to Africana Social Institutions and Behavior (3)
3 hours lecture

Transfer acceptability: CSU; UC
Social institutions and their influence on the behavior of Africana peoples. Analysis of facts, principles, and concepts basic to understanding human behavior.

AS 125 Africana Peoples and the World Political Economy (3)
3 hours lecture

Transfer acceptability: CSU; UC
Socio political economic institutions and forces operative in the Africana world. Analysis of the economic and political motives based in the slave trade, colonialism, and underdevelopment.

AS 126 Cultures of Africa (3)
 3 hours lecture
Note: Cross listed as ANTH 126.
Transfer acceptability: CSU; UC
 Introduction to the indigenous peoples and cultures of Africa. Brief prehistoric and historic background of the continent. Comparative study of traditional cultures representative of the continent's diversity. Focus on social, economic, political, religious and aesthetic life, and culture change.

Alcohol and Other Drug Studies (AODS)

Contact the Behavioral Sciences Department for further information, (760) 744-1150, ext. 2329. For transfer information, consult a Palomar College counselor.

COURSE OFFERINGS

AODS 140 Introduction to Psychological and Social Services (4)
 3 hours lecture 3 hours laboratory
Note: Cross listed as PSYC 140/SOC 140
Transfer acceptability: CSU
 An overview of the theoretical basis of counseling skills, including social work, psychodynamic, behavioral, and client-centered approaches. The roles of psychologists, sociologists, social workers, family therapists, and therapeutic support providers are compared and contrasted, and the issues they deal with are described. This course provides students with an opportunity to observe actual practices of human services providers working as interdisciplinary team members in an agency setting. Through cooperative efforts of provider agencies, the instructor, and the student, the skills utilized for entry level employment are observed, practiced, and evaluated under supervision.

AODS 150 Introduction to Chemical Dependency (3)
 3 hours lecture
Note: Cross listed as PSYC 150/SOC 150
Transfer acceptability: CSU
 This basic course will provide a historical perspective on alcohol and other psychoactive drug abuse and its impact on the community. An interdisciplinary approach will be used. Topics will include definitions, sociocultural factors related to use and/or abuse, identification of issues and models of dependency and recovery, and analysis of the effectiveness of policies and programs.

AODS 155 The Physiology and Pharmacology of Psychoactive Drugs (3)
 3 hours lecture
Note: Cross listed as PSYC 155/SOC 155
Transfer acceptability: CSU
 This course will examine how psychoactive drugs affect the nervous system. Ways of classifying drugs will be identified including the processes of physical and psychological dependence, tolerance, withdrawal, and genetic predispositions. Temporary and long-term affective, behavioral, cognitive, biological, and social consequences of psychoactive drug use will be explored, including disorders such as Korsakoff's syndrome and other nutritional deficiencies.

AODS 160 Prevention, Intervention, and Education (3)
 3 hours lecture
Note: Cross listed as PSYC 160/SOC 160
Transfer acceptability: CSU
 This course will review historical and contemporary approaches for chemical dependency, including prevention, intervention, and education. It will analyze the progression of substance abuse and chemical dependency disorders and will evaluate types of prevention, education, and intervention strategies.

AODS 250 Group Leadership and Process (3)
 3 hours lecture
Note: Cross listed as PSYC 250/SOC 250
Transfer acceptability: CSU

An introduction to the dynamics of group interaction, with emphasis upon the individual's firsthand experience as the group studies itself under supervision. Problems of communication, effective emotional responses, and personal growth will be highlighted. The emphasis will be upon group process as a means of changing behavior.

AODS 255 Treatment Modalities, Law and Ethics (3)
 3 hours lecture
Note: Cross listed as PSYC 255/SOC 255
Transfer acceptability: CSU
 This course reviews the principles and practices of addiction treatment including screening, intake, orientation, assessment, treatment planning, counseling, case management, crisis intervention, education of clients and their families, referral, report and record keeping, and consultation. Legal and ethical standards of practice for addictions counselors will be reviewed and included in this body of knowledge, skills, and attitudes.

AODS 260 Chemical Dependency Family Counseling (3)
 3 hours lecture
Note: Cross listed as PSYC 260/SOC 260
Transfer acceptability: CSU
 This course is designed to explore methods of assisting family members and others to understand and to cope with the alcohol and drug abuse of alcoholics and addicts. Several family therapy modalities will be explored. The approach will be experiential in format and students will participate in exercises that lead to the development of these skills.

AODS 298 Directed Field Experience I (5)
 3 hours lecture 6 hours laboratory
Note: Cross listed as PSYC 298/SOC 298
Transfer acceptability: CSU
 Principles of interpersonal conflict dynamics and approaches for conflict resolution are analyzed. Non-directive, directive and behavior modification skills that are used to increase motivation for positive behavioral change are compared and evaluated. Field placement provides students with an opportunity to observe human services providers dealing with conflict in agency settings using structured and informal conflict resolution approaches. Interns are also provided with opportunities to practice conflict resolution techniques and skills for increasing motivation for positive change.

AODS 299 Directed Field Experience II (6)
 3 hours lecture 9 hours laboratory
Note: Cross listed as PSYC 299/SOC 299
Transfer acceptability: CSU
 This course emphasizes advanced concepts in chemical dependency. The functions and consequences of denial and ambivalence are explored in depth, and students refine their skills for the 12 core functions of effective clinical practice. They prepare for the oral California certifying examinations and for entry level positions as alcohol and drug counselors. Students practice these skills in class and under the supervision of agency personnel.

American Indian Studies (AIS)

Contact the American Indian Studies Department for further information, (760) 744-1150, ext. 2425. For transfer information, consult a Palomar College counselor.

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAM OF STUDY

American Indian Studies

Provides cultural background and preparation to enhance employment opportunities with American Indian people.

CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
AIS 100 Introduction to American Indian Studies	3
AIS 101 or The American Indian Frontier	
AIS 102 Indian/U.S. Political System	3
AIS 125 American Indians Today	3
AIS/ANTH 130 Prehistoric Cultures of North America	3
Electives (Consult with department prior to selection of two additional courses)	
AIS 105 History of Native American Arts	3
AIS 110 History of the Plains Indian	3
AIS 115 A History of Southwest Indians	3
AIS 120 Indians of the Americas	3
AIS 135 California Indian Arts	3
AIS/ANTH 140 The Original Californians	3
AIS 141 Elementary Luiseño IA	3
AIS 142 Elementary Luiseño IB	3
AIS 143 Elementary Luiseño IIA	3
AIS 144 Elementary Luiseño IIB	3
AIS 145 American Indian Literature	3
AIS 150 American Indian Philosophy and Religion	3
AIS 151 Elementary Cupeño IA	3
AIS 152 Elementary Cupeño IB	3
AIS 153 Elementary Cupeño IIA	3
AIS 154 Elementary Cupeño IIB	3
AIS 165 Native Women in the Americas	3
AIS 175 American Indian Science and Technology	3
TOTAL UNITS	18

COURSE OFFERINGS

- AIS 100 Introduction to American Indian Studies (3)**
3 hours lecture
Transfer acceptability: CSU; UC
 American Indian cultures in North America are studied from early cultures to contemporary society. A cross disciplinary approach examines applicable methods and theories from sciences and humanities.
- AIS 101 The American Indian Frontier From Colonialism Through the Present (3)**
3 hours lecture
Note: This course plus AIS 102 meets the State requirement in American History and Institutions.
Transfer acceptability: CSU; UC
 The historical, economic, and cultural development of the American Indian in relation to European and American contact. Extensive use and analysis of historical sources from the colonial period through the present.
- AIS 102 The American Indian and the U.S. Political System (3)**
3 hours lecture
Note: This course plus AIS 101 meets the State requirement in American History and Institutions.
Transfer acceptability: CSU; UC – maximum credit for one course: AIS 102, AIS 110, CS 102
 Surveys the role of American Indian people in the U.S. political system and institutions. Includes an examination of American Indian political structures and functions from pre contact period to contemporary as well as analysis of Federal Indian policy and leading issues and organizations that affect the American Indian community.
- AIS 105 History of Native American Arts (3)**
3 hours lecture
Transfer acceptability: CSU; UC
 An historical survey encompassing North, Meso, and South American Indian arts from pre-Columbian through contemporary periods. American Indian art forms are examined in terms of cultural context, history of styles, and artists.

- AIS 110 History of the Plains Indian (3)**
3 hours lecture
Transfer acceptability: CSU; UC
 An analysis of the Plains Indian. Examines lifestyles, mores, traditions, and tactics of war. Attention will be given to relations with the U.S. Government and to the background and evolution of acculturations.
- AIS 115 A History of Southwest Indians (3)**
3 hours lecture
Transfer acceptability: CSU; UC
 A history, transculturation, and present culture of the Southwest Indians with emphasis upon their retention of traditional customs.
- AIS 120 Indians of the Americas (3)**
3 hours lecture
Transfer acceptability: CSU; UC
 A cross cultural study of American Indian Peoples in South America, Meso America, and North America. Emphasis is placed on the contrast of societies as diverse as Incans, Amazonians, Eskimos, and Mayans.
- AIS 125 American Indians Today (3)**
3 hours lecture
Transfer acceptability: CSU; UC
 The development of a greater sensitivity to the American Indian through analysis of ethnocentrism exhibited in contemporary American pluralistic society. This will be done through the analysis of stereotyping, history, cultural practice, and contemporary issues.
- AIS 130 Prehistoric Cultures of North America (3)**
3 hours lecture
Note: Cross listed as ANTH 130
Transfer acceptability: CSU; UC
 Emphasis given to prehistoric cultural traditions of the Eastern Woodlands, Central Plains, and Far Western United States and Canada. Special concern for archaeological problems; reconstruction of these traditions and cultural changes.
- AIS 135 California Indian Arts (3)**
3 hours lecture
Transfer acceptability: CSU; UC
 Emphasis on the regional styles of California tribal arts with analysis of the social, religious, political, and cultural contributions. A combination of lectures, slides, individual projects, small group discussions, field trips, and guest artists.
- AIS 139 Native American Linguistics (3)**
3 hours lecture
Transfer acceptability: CSU
 This introductory linguistics course will enable the student to create a practical orthography and a basic standardized grammar for an endangered language with no written literary tradition.
- AIS 140 The Original Californians (3)**
3 hours lecture
Note: Cross listed as ANTH 140.
Transfer acceptability: CSU; UC
 Native people of California: Their origin, language, arts, customs religion, folklore, and music. Special emphasis on Southern California.
- AIS 141 Elementary Luiseño IA (3)**
3 hours lecture
Note: AIS 141+142 correspond to one year of high school foreign language
Transfer acceptability: CSU; UC
 An introduction to the fundamentals of the Luiseño language, one of the four indigenous languages of San Diego County. This course will include a survey of Luiseño language phonology, morphology, syntax and grammar with special emphasis on culturally relevant terminology.

- AIS 142 Elementary Luiseño IB (3)**
3 hour lecture
Note: AIS 141+142 correspond to one year of high school foreign language
Transfer acceptability: CSU; UC
Review of the phonology, morphology, syntax and grammar of the Luiseño language, with continued emphasis on culturally relevant terminology leading to increased proficiency in expressing basic concepts both orally and in writing.
- AIS 143 Elementary Luiseño IIA (3)**
3 hours lecture
Note: AIS 143 + 144 correspond to two years of high school foreign language.
Transfer acceptability: CSU; UC
Elementary grammar, review, composition, and continued oral practice.
- AIS 144 Elementary Luiseño IIB (3)**
3 hours lecture
Note: AIS 143 + 144 correspond to two years of high school foreign language.
Transfer acceptability: CSU; UC
Elementary grammar, review, composition, and continued oral practice.
- AIS 145 American Indian Literature (3)**
3 hours lecture
Transfer acceptability: CSU; UC
A survey of historical and contemporary American Indian literature. Examines traditional and contemporary genres.
- AIS 150 American Indian Philosophy and Religion (3)**
3 hours lecture
Transfer acceptability: CSU; UC
The principles of American Indian philosophy and religious rites practiced prior to extensive European contacts with North American tribes, and the subsequent impact of European cultures on American Indian philosophy and religion.
- AIS 151 Elementary Cupeño IA (3)**
3 hours lecture
Note: AIS 151 + 152 correspond to one year of high school foreign language.
Transfer acceptability: CSU; UC
Elementary grammar, composition, and oral practice.
- AIS 152 Elementary Cupeño IB (3)**
3 hours lecture
Note: AIS 151 + 152 correspond to one year of high school foreign language.
Transfer acceptability: CSU; UC
Elementary grammar, review, composition, and continued oral practice.
- AIS 153 Elementary Cupeño IIA (3)**
3 hours lecture
Note: AIS 153 + 154 correspond to two years of high school foreign language.
Transfer acceptability: CSU; UC
Elementary grammar, review, composition, and continued oral practice.
- AIS 154 Elementary Cupeño IIB (3)**
3 hours lecture
Note: AIS 153 + 154 correspond to two years of high school foreign language.
Transfer acceptability: CSU; UC
Elementary grammar, review, composition, and continued oral practice.
- AIS 155 American Indian Community Development (3)**
3 hours lecture
Note: May be taken 4 times
Transfer acceptability: CSU
Investigation and analysis of the relationship between the American Indian and the non Indian in contemporary society with special emphasis on fieldwork and research to explore existing programs and to develop solutions to problems originating from these programs.
- AIS 160 American Indian Education (3)**
3 hours lecture
Transfer acceptability: CSU
The historical development of American Indian education. Emphasis is placed on traditional philosophies as well as American philosophies as they relate to the educational process of the American Indian.
- AIS 161 Elementary Classical Nahuatl (3)**
3 hours lecture
Note: Cross listed as CS 161
Transfer acceptability: CSU; UC
This is an introductory course on the Classical Nahuatl language of the Aztec Empire. Students will acquire a basic knowledge of Nahuatl morphology and syntax.
- AIS 165 Native Women in the Americas (3)**
3 hours lecture
Transfer acceptability: CSU; UC
Social and psychological comparison of the roles of native women in the Americas. Areas of emphasis shall include: kinship, childbearing, leadership, and religious roles. These will be examined in contemporary and traditional settings.
- AIS 170 Political/History Problems and Issues of California Indians (3)**
3 hours lecture
Transfer acceptability: CSU; UC
Examines the political structure and functions of American Indians in California as they relate to federal, state, and local governments. Includes analysis of problems and issues relevant to California Indians through an historical, political, and economic framework.
- AIS 175 American Indian Science and Technology (3)**
3 hours lecture
Transfer acceptability: CSU; UC
An introductory course in the development of scientific ideas in American Indian cultures as compared to other cultures in terms of context, practitioners, and technological applications. Primary comparison is with conventional Western areas of physical, biological, and applied sciences derived from scientific methodology.
- AIS 197 American Indian Studies Topics (.5-4)**
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times
Transfer acceptability: CSU; UC - Credit determined by UC upon review of course syllabus.
Topics in American Indian Studies. See class schedule for specific topic covered. Course title will designate subject covered.

American Sign Language (ASL)

Contact the Speech Communication/Forensics/ASL Department for further information, (760) 744-1150, ext. 2405

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAM OF STUDY

American Sign Language/ English Interpreter Training Program

Preparation courses (for students not already competent in signing): ASL 100, 100L, 101, 101L, 105, 205, 205L, 206, and 206L.

**A.A. DEGREE MAJOR OR
CERTIFICATE OF ACHIEVEMENT**

Program Requirements		Units
ASL 110	Awareness of Deaf Culture	3
ASL 115	Perspective on Deafness	3
ASL 208	Interpreting as a Profession	3
ASL 210	Interpreting I	4
ASL 211	Interpreting II	4
ASL 215	Interpreting III	4
ASL 216	Interpreting IV	4
ASL 220	Specialized Settings of Interpreting	3
ASL 298	Fieldwork in Interpreting	1.5
ENG 100	English Composition	4

TOTAL UNITS 33.5

Upon successful completion of this program, students may elect to take a proficiency exam to determine eligibility for entry-level employment as ASL/English interpreters.

COURSE OFFERINGS

Courses numbered under 100 are not intended for transfer credit.

ASL 97 Topics in American Sign Language (.5-4)
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times
The course objectives will depend on the specific topic covered. A set of objectives will be developed for each topic class and included in an outline developed by the instructor.

ASL 100 American Sign Language I (4)
4 hours lecture
Transfer acceptability: CSU; UC
Introduction to the practice and use of American Sign Language.

ASL 100L American Sign Language I (Lab) (1)
3 hours laboratory
Prerequisite: Completion of, or concurrent enrollment in ASL 100
Note: Credit/No Credit grading only; may be taken 2 times
Transfer acceptability: CSU
Individualized program intended for students who wish to further improve their ASL skills. Students will utilize videotapes, software, and workbooks in the American Sign Language/English Interpreting Lab to improve comprehension of basic ASL sentences and stories. Through the use of video recording equipment, students will have the opportunity to improve their expressive signing skills. Lab activities are designed to provide students the opportunity to practice vocabulary and syntax taught in ASL 100.

ASL 101 American Sign Language II (4)
4 hours lecture
Prerequisite: ASL 100 with a 'C' or better
Transfer acceptability: CSU; UC
Continued development in American Sign Language.

ASL 101L American Sign Language II (Lab) (1)
3 hours laboratory
Prerequisite: Completion of, or concurrent enrollment in ASL 101
Note: Credit/No Credit grading only, may be taken 2 times
Transfer acceptability: CSU
Individualized program intended for students who wish to further improve their ASL skills. Students will utilize videotapes, software, and workbooks in the American Sign Language/English Interpreting Lab to improve comprehension of ASL sentences and stories. Through the use of video recording equipment, students will have the opportunity to improve their expressive signing skills. Lab activities are designed to provide students the opportunity to practice vocabulary and syntax taught in ASL 101.

ASL 105 Fingerspelling (3)
3 hours lecture

Prerequisite: ASL 100
Note: May be taken 2 times
Transfer acceptability: CSU
Introduction to the American Manual alphabet (fingerspelling), including numbers, loan signs, acronyms and abbreviations commonly used in the Deaf community. Extensive drills and practice in both expressive and receptive skills.

ASL 110 Awareness of Deaf Culture (3)
3 hours lecture

Transfer acceptability: CSU; UC
An introduction to American Deaf Culture, the history, the community, and the language. Deaf cultural values, characteristics, and dynamics will be discussed as well as issues related to minority dynamics, the double/multiple minority experience, including but not limited to, Deaf African-Americans, Deaf Latinas/Latinos, Deaf Women, Deaf gays/lesbians, Deaf-blind, Deaf senior citizens, and the multiple combinations of these. Organizations and individual perceptions of self in relation to group identity, along with political views as examined through articles, books, and videotaped interviews will be studied.

ASL 115 Perspectives on Deafness (3)
3 hours lecture

Transfer acceptability: CSU
The historical and current implications of deafness. Communication philosophies and systems, educational approaches, and varying philosophies concerning the education and communicating techniques of the Deaf.

ASL 197 Topics in American Sign Language (.5-4)

Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times.

Transfer acceptability: CSU
Topics in American Sign Language. See class schedule for specific topic covered. Course title will designate subject covered

ASL 205 American Sign Language III (4)
4 hours lecture

Prerequisite: ASL 101 with a 'C' or better
Transfer acceptability: CSU; UC
Intermediate language, phrasing, and communication skills in American Sign Language.

ASL 205L American Sign Language III (Lab) (1)
3 hours laboratory

Prerequisite: Completion of, or concurrent enrollment in ASL 205
Note: Credit/No Credit grading only, may be taken 2 times
Transfer acceptability: CSU
Individualized program intended for students who wish to further improve their ASL skills. Students will utilize videotapes, software, and workbooks in the American Sign Language/English Interpreting Lab to improve comprehension of advanced ASL sentences and stories. Through the use of video recording equipment, students will have the opportunity to improve their expressive and receptive signing skills. Lab activities are designed to provide students the opportunity to practice vocabulary and syntax taught in ASL 205.

ASL 206 American Sign Language IV (4)
4 hours lecture

Prerequisite: ASL 205 with a 'C' or better
Transfer acceptability: CSU; UC
Advanced language, phrasing, and communication skills in American Sign Language.

ASL 206L American Sign Language IV (Lab) (1)
3 hours laboratory

Prerequisite: Completion of, or concurrent enrollment in ASL 206
Note: Credit/No Credit grading only; may be taken 2 times

Transfer acceptability: CSU

Individualized program intended for students who wish to further improve their ASL skills. Students will utilize videotapes, software, and workbooks in the American Sign Language/English Interpreting Lab to improve comprehension of advanced ASL sentences and stories. Through the use of video recording equipment, students will have the opportunity to improve their expressive and receptive signing skills. Lab activities are designed to provide students the opportunity to practice vocabulary and syntax taught in ASL 206.

ASL 208 Interpreting as a Profession (3)

3 hours lecture

Prerequisite: ASL 206

Transfer acceptability: CSU

Develops insight into the value of interpreting as a profession. Includes instruction on national testing standards, preparation for certification, and the necessity of ethics as outlined in the Interpreting Code of Ethics.

ASL 210 Interpreting I (4)

4 hours lecture

Prerequisite: ASL 110 and 206 with a 'C' or better

Recommended preparation: ENG 100 and ASL 115

Note: May be taken 4 times

Transfer acceptability: CSU

This course provides students with the cognitive skills necessary for interpreting between American Sign Language and English, including discourse analysis of source language messages, paraphrasing and summarizing techniques, and identification of main points. Emphasis is placed on the steps necessary to produce an equivalent target language message through translation, consecutive interpreting, and peer collaboration. Students will begin to develop the skills and knowledge necessary to become culturally sensitive, ethical, and professional interpreters. Primary language of instruction for class lectures and discussion will be ASL. Students are expected to have attained a reasonable level of competency in both ASL and English in order to have access to class lectures and participate fully in class discussions and activities, as instruction will occur in both languages.

ASL 211 Interpreting II (4)

4 hours lecture

Prerequisite: ASL 208 and ASL 210 with a 'C' or better

Recommended preparation: ENG 100

Note: May be taken 4 times

Transfer acceptability: CSU

This course is designed to improve student ability to perform the components involved in the process of interpreting as learned in Interpreting I. Primary emphasis is placed on the development of cognitive and linguistic skills, consecutive interpretation, and interpretation of interactive video dialogues between Deaf and hearing people. Students will begin applying skills learned to basic simultaneous interpreting tasks. Further development of language fluency in both American Sign Language (ASL) and English should occur as a result of this course, as instruction will occur in both languages.

ASL 215 Interpreting III (4)

4 hours lecture

Prerequisite: ASL 211 with a 'C' or better and ASL 220

Recommended preparation: ENG 100

Note: May be taken 4 times

Transfer acceptability: CSU

This course is a continuation of Interpreting II. Primary emphasis is placed on the development of simultaneous ASL/English interpreting/transliterating tasks. Further development of language fluency in both American Sign Language (ASL) and English should occur as a result of this course. Development of multi-tasking skills enables students to begin interpreting more complex discourse such as that in a higher register or of substantive cognitive-academic content. Students are expected to have attained a reasonable level of competency in both ASL and English in order to have access to class lectures and participate fully in class discussions and activities, as instruction will occur in both languages.

ASL 216 Interpreting IV (4)

4 hours lecture

Prerequisite: ASL 215 with a 'C' or better

Corequisite: ASL 298

Recommended preparation: ENG 100

Note: May be taken 4 times

Transfer acceptability: CSU

This course is a continuation of Interpreting III. Emphasis is placed on the enhancement of simultaneous ASL/English interpreting of complex discourse through increased fluency, speed and accuracy. Students will improve equivalence between source and target language while performing simultaneous interpreting and/or transliterating tasks. Students are expected to have attained a reasonable level of competency in both ASL and English in order to have access to class lectures and participate fully in class discussions and activities, as instruction will occur in both languages.

ASL 220 Specialized Settings of Interpreting (3)

3 hours lecture

Prerequisite: Completion of, or concurrent enrollment in ASL 206

Transfer acceptability: CSU

This course discusses professional, ethical, technical, and logistical factors involved when interpreting between American Sign Language and spoken English in various settings. Specialized settings introduced in this course include: educational, mental health, legal, medical, social services, business, religious, platform, and performing arts. Telephone, Deaf-blind and oral interpreting will also be discussed. The primary language of instruction will be American Sign Language.

ASL 298 Fieldwork in Interpreting (1.5)

4½ hours laboratory

Prerequisite: Concurrent enrollment in or completion of ASL 216

Note: May be taken 2 times

Transfer acceptability: CSU

The purpose of this course is for students to apply skills and knowledge gained from previous interpreting coursework to actual interpreting assignments. Students will begin interpreting or transliterating, with appropriate supervision and in appropriate situations, for actual assignments. Students will have opportunities to observe qualified working interpreters in a variety of settings. Community service and classroom seminar discussions on professional, ethical, technical and logistical aspects of interpreting will also be included in course content. Students must demonstrate adequate ASL to English and English to ASL performance on an exit exam.

American Studies (AMS)

Contact the American Indian Studies Department for further information, (760) 744-1150, ext. 2425. For transfer information, consult a Palomar College counselor.

COURSE OFFERINGS

AMS 100 American Culture and Identity (3)

3 hours lecture

Transfer acceptability: CSU; UC

Identity and values, such as the arts, beliefs, and social forms, as expressed in lifestyles. Regional and interdisciplinary approaches will be used to build a dynamic model of American culture and its impact on Americans and the world.

AMS 110 Diverse Cultures in America Today (3)

3 hours lecture

Note: Cross listed as MCS 110

Transfer acceptability: CSU; UC

An investigation of prevalent cultural trends in four groups of diverse ethnic and cultural backgrounds in America -- African Americans, Latinos, Chinese, and people of Jewish heritage -- since World War II. Emphasis will be placed on the literary, musical, and artistic expressions of their heritage, social conditions, struggle to become part of the main culture, and response to prejudice, racial, and religious

Transfer acceptability: CSU

Individualized program intended for students who wish to further improve their ASL skills. Students will utilize videotapes, software, and workbooks in the American Sign Language/English Interpreting Lab to improve comprehension of advanced ASL sentences and stories. Through the use of video recording equipment, students will have the opportunity to improve their expressive and receptive signing skills. Lab activities are designed to provide students the opportunity to practice vocabulary and syntax taught in ASL 206.

ASL 208 Interpreting as a Profession (3)

3 hours lecture

Prerequisite: ASL 206

Transfer acceptability: CSU

Develops insight into the value of interpreting as a profession. Includes instruction on national testing standards, preparation for certification, and the necessity of ethics as outlined in the Interpreting Code of Ethics.

ASL 210 Interpreting I (4)

4 hours lecture

Prerequisite: ASL 110 and 206 with a 'C' or better

Recommended preparation: ENG 100 and ASL 115

Note: May be taken 4 times

Transfer acceptability: CSU

This course provides students with the cognitive skills necessary for interpreting between American Sign Language and English, including discourse analysis of source language messages, paraphrasing and summarizing techniques, and identification of main points. Emphasis is placed on the steps necessary to produce an equivalent target language message through translation, consecutive interpreting, and peer collaboration. Students will begin to develop the skills and knowledge necessary to become culturally sensitive, ethical, and professional interpreters. Primary language of instruction for class lectures and discussion will be ASL. Students are expected to have attained a reasonable level of competency in both ASL and English in order to have access to class lectures and participate fully in class discussions and activities, as instruction will occur in both languages.

ASL 211 Interpreting II (4)

4 hours lecture

Prerequisite: ASL 208 and ASL 210 with a 'C' or better

Recommended preparation: ENG 100

Note: May be taken 4 times

Transfer acceptability: CSU

This course is designed to improve student ability to perform the components involved in the process of interpreting as learned in Interpreting I. Primary emphasis is placed on the development of cognitive and linguistic skills, consecutive interpretation, and interpretation of interactive video dialogues between Deaf and hearing people. Students will begin applying skills learned to basic simultaneous interpreting tasks. Further development of language fluency in both American Sign Language (ASL) and English should occur as a result of this course, as instruction will occur in both languages.

ASL 215 Interpreting III (4)

4 hours lecture

Prerequisite: ASL 211 with a 'C' or better and ASL 220

Recommended preparation: ENG 100

Note: May be taken 4 times

Transfer acceptability: CSU

This course is a continuation of Interpreting II. Primary emphasis is placed on the development of simultaneous ASL/English interpreting/transliterating tasks. Further development of language fluency in both American Sign Language (ASL) and English should occur as a result of this course. Development of multi-tasking skills enables students to begin interpreting more complex discourse such as that in a higher register or of substantive cognitive-academic content. Students are expected to have attained a reasonable level of competency in both ASL and English in order to have access to class lectures and participate fully in class discussions and activities, as instruction will occur in both languages.

ASL 216 Interpreting IV (4)

4 hours lecture

Prerequisite: ASL 215 with a 'C' or better

Corequisite: ASL 298

Recommended preparation: ENG 100

Note: May be taken 4 times

Transfer acceptability: CSU

This course is a continuation of Interpreting III. Emphasis is placed on the enhancement of simultaneous ASL/English interpreting of complex discourse through increased fluency, speed and accuracy. Students will improve equivalence between source and target language while performing simultaneous interpreting and/or transliterating tasks. Students are expected to have attained a reasonable level of competency in both ASL and English in order to have access to class lectures and participate fully in class discussions and activities, as instruction will occur in both languages.

ASL 220 Specialized Settings of Interpreting (3)

3 hours lecture

Prerequisite: Completion of, or concurrent enrollment in ASL 206

Transfer acceptability: CSU

This course discusses professional, ethical, technical, and logistical factors involved when interpreting between American Sign Language and spoken English in various settings. Specialized settings introduced in this course include: educational, mental health, legal, medical, social services, business, religious, platform, and performing arts. Telephone, Deaf-blind and oral interpreting will also be discussed. The primary language of instruction will be American Sign Language.

ASL 298 Fieldwork in Interpreting (1.5)

4½ hours laboratory

Prerequisite: Concurrent enrollment in or completion of ASL 216

Note: May be taken 2 times

Transfer acceptability: CSU

The purpose of this course is for students to apply skills and knowledge gained from previous interpreting coursework to actual interpreting assignments. Students will begin interpreting or transliterating, with appropriate supervision and in appropriate situations, for actual assignments. Students will have opportunities to observe qualified working interpreters in a variety of settings. Community service and classroom seminar discussions on professional, ethical, technical and logistical aspects of interpreting will also be included in course content. Students must demonstrate adequate ASL to English and English to ASL performance on an exit exam.

American Studies (AMS)

Contact the American Indian Studies Department for further information, (760) 744-1150, ext. 2425. For transfer information, consult a Palomar College counselor.

COURSE OFFERINGS

AMS 100 American Culture and Identity (3)

3 hours lecture

Transfer acceptability: CSU; UC

Identity and values, such as the arts, beliefs, and social forms, as expressed in lifestyles. Regional and interdisciplinary approaches will be used to build a dynamic model of American culture and its impact on Americans and the world.

AMS 110 Diverse Cultures in America Today (3)

3 hours lecture

Note: Cross listed as MCS 110

Transfer acceptability: CSU; UC

An investigation of prevalent cultural trends in four groups of diverse ethnic and cultural backgrounds in America -- African Americans, Latinos, Chinese, and people of Jewish heritage -- since World War II. Emphasis will be placed on the literary, musical, and artistic expressions of their heritage, social conditions, struggle to become part of the main culture, and response to prejudice, racial, and religious

discrimination. Selections dealing with social conditions will include such diverse issues as family life, intergenerational conflicts, and religious traditions.

AMS 182 Introduction to Arts Management (3)
9 hours laboratory

Note: Cross listed as ART 182, DNCE 182, MUS 182 and TA 182
Transfer acceptability: CSU

An introduction to the principles and practices of arts management through an interdisciplinary study of management topics in the visual and performing arts.

AMS 183 Internship in Arts Management (3)
9 hours laboratory

Prerequisite: ART/DANCE/MUS or TA 182
Note: Cross listed as ART 183, DNCE 183, MUS 183, and TA 183
Transfer acceptability: CSU

Practical experience in arts management in the visual and performing arts.

AMS 200 Race, Class, and Ethnic Groups in America (3)
3 hours lecture

Note: Cross listed as MCS 200 and SOC 200
Transfer acceptability: CSU; UC – AMS/MCS/SOC 200 combined: maximum credit, one course

This course is designed to introduce the topics of intergroup relations in general to superordinate-subordinate relations in particular, as exemplified in various racial, ethnic, social class, and cultural groups. Emphasis is primarily on contemporary relations in the United States, although a comparative perspective is also offered.

Anatomy

See Zoology

Anthropology (ANTH)

Contact the Behavioral Sciences Department for further information, (760) 744-1150, ext. 2330. For transfer information, consult a Palomar College counselor.

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAMS OF STUDY

Students desiring a career in the field of archaeology or other fields of anthropology have the option of selecting a program leading to the Associate in Arts Degree and/or one or two programs leading to Certificates of Achievement, depending upon their needs and desires.

Archaeological Excavator

Prepares student for employment as an archaeological site excavator.

CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
ANTH 100 Introduction to Biological Anthropology	3
ANTH 105 Introduction to Cultural Anthropology	3
ANTH 110 Introduction to Archaeology	3
ANTH 120 Archaeological Excavation	3
ANTH/AIS 130 Prehistoric Cultures of North America	3
ANTH/AIS 140 or The Original Californians	3
ANTH 100L and Biological Anthropology Laboratory	1
ANTH 297 Special Problems in Archaeology	2
ANTH 205 Advanced Archaeological Excavation	3
TOTAL UNITS	21

Archaeological Surveyor and Laboratory Assistant

Prepares student for employment as an archaeological surveyor and laboratory assistant.

CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
ANTH 100 Introduction to Biological Anthropology	3
ANTH 105 Introduction to Cultural Anthropology	3
ANTH 110 Introduction to Archaeology	3
ANTH 120 Archaeological Excavation	3
ANTH 205 or Advanced Archaeological Excavation	3
ANTH 220 Advanced Archaeological Surveying	3
ANTH 210 Archaeological Surveying	3
ANTH 215 Archaeological Laboratory Analysis	3
TOTAL UNITS	21

Archaeology

Provides the student with training which will enhance employment opportunities as a para-professional archaeologist as well as sufficient background to begin upper division work in anthropology.

A.A. DEGREE MAJOR

Program Requirements	Units
ANTH 100 Introduction to Biological Anthropology	3
ANTH 105 Introduction to Cultural Anthropology	3
ANTH 110 Introduction to Archaeology	3
ANTH 120 Archaeological Excavation	3
ANTH/AIS 130 or Prehistoric Cultures of North America	3
ANTH/AIS 140 The Original Californians	3
ANTH 205 Advanced Archaeological Excavation	3
ANTH 210 Archaeological Surveying	3
ANTH 215 Archaeological Laboratory Analysis	3
ANTH 225 Historical Archaeology	3

Electives (Select 6 units from Groups One and/or Two)

Group One	Units
AIS 150 American Indian Philosophy and Religion	3
ANTH 125 Evolution, Science & Religion	3
ANTH/AS 126 Cultures of Africa	3
ANTH 135 Magic and Folk Religions	3
ANTH 145 Cultures of the Pacific Rim	3
ANTH/ENG 150 Introduction to Linguistics	3
ANTH/CS 155 Ancient Civilizations of Meso America	3
ANTH 160 Major Themes/Discoveries/Anth	3
ANTH 296 Special Problems in Anthropology	1,2,3
GEOL 100 Physical Geology	3

Group Two (strongly recommended for focus on technical skills)

ANTH 100L Biological Anthropology Laboratory	1
ANTH 220 Advanced Archaeological Surveying	3
ANTH 297 Special Problems in Archaeology	1,2,3
CE 150 Cooperative Education Internship	2,3
CSIS 179 Access	1
GEOG 120 Intro Geog Info Sys/Software	4
GEOG 132 Database Mgmt/Data Acquisition	4
GEOG 134 GIS Applications	2
GEOG 136 Intermediate ArcGIS: GIS Analysis	2
GEOG 138 GIS Internship	2
DT/RDT 125 AutoCAD Intro to Computer Aided Drafting	3
PHOTO 230 Digital Darkroom	3.5
PSYC/SOC 205 Statistics for the Behavioral Sciences	3

TOTAL UNITS	33
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COURSE OFFERINGS

An activity may be taken four times for credit. Activity is defined to include all ability levels. (e.g., A student may take a total of only four Archeological Excavation courses for credit.)

ANTH 100 Introduction to Biological Anthropology (3)
3 hours lecture

Transfer acceptability: CSU; UC – ANTH 100/100L and 101 combined: max credit, 4 units; CAN ANTH 2

Human bio cultural origins. The place of humans in nature. Fossil evidence for human and other primate evolution; genetic variability; primate behavior; relationship of physical and cultural adaptations.

ANTH 100L Biological Anthropology Laboratory (1)
3 hours laboratory

Prerequisite: Completion of, or concurrent enrollment in, ANTH 100

Transfer acceptability: CSU; UC

This laboratory course provides an introduction to the methods and techniques used in research in physical/biological anthropology. The topics under study include: the scientific method, principles of evolution, human genetics, human osteology, anthropometrics, forensic anthropology, anatomy and behavior of living nonhuman primates, and paleoanthropology.

ANTH 101 Introduction to Biological Anthropology (4)
3 hours lecture-3 hours laboratory

Transfer acceptability: CSU; UC

The lecture and laboratory course provides an introduction to the methods and techniques used in research in biological anthropology. The topics under study include: the scientific method, principles of evolution, human genetics, human osteology, anthropometrics, forensic anthropology, anatomy and behavior of living nonhuman primates, and paleoanthropology.

ANTH 105 Introduction to Cultural Anthropology (3)
3 hours lecture

Transfer acceptability: CSU; UC; CAN ANTH 4

An introduction to the study of concepts, theories, and methods used in the comparative study of sociocultural systems. The course typically includes subjects such as subsistence patterns, social and political organization, language and communication, family and kinship, religion, the arts, social inequality, ethnicity, gender, culture change and the application of anthropological perspectives to contemporary issues.

ANTH 110 Introduction to Archaeology (3)
3 hours lecture

Transfer acceptability: CSU; UC; CAN ANTH 6

An introduction covering the history, objectives, and methods of archaeology; significant discoveries throughout the old and new worlds, and the history and nature of culture as revealed by archaeology as an anthropological study. Field studies in local areas may be included.

ANTH 115 Comparative Societies (3)
3 hours lecture

Transfer acceptability: CSU; UC

A survey of the world's diverse peoples and customs as presented in films, lectures, and case study readings.

ANTH 120 Archaeological Excavation (3)
1 hour lecture 6 hours laboratory

Transfer acceptability: CSU

Archaeological field techniques to include a minimum of 90 hours of in field experience. Course will include excavation, use of instruments/tools, and preparation of a project analysis or report.

ANTH 125 Evolution, Science and Religion (3)
3 hours lecture

Transfer acceptability: CSU; UC

The course focuses on the long-standing debate surrounding biological evolution and various religious views of creation. The evidence and arguments offered for

and against evolution and creationist world views are examined in the context of science and the scientific method, the influence of cultural and personal values, the nature and use of evidence, and the difference between knowledge and belief.

ANTH 126 Cultures of Africa (3)
3 hours lecture

Note: Cross listed as AS 126

Transfer acceptability: CSU; UC

Introduction to the indigenous peoples and cultures of Africa. Brief prehistoric and historic background of the continent. Comparative study of traditional cultures representative of the continent's diversity. Focus on social, economic, political, religious and aesthetic life, and culture change.

ANTH 130 Prehistoric Cultures of North America (3)
3 hours lecture

Note: Cross listed as AIS 130

Transfer acceptability: CSU; UC

Emphasis given to prehistoric cultural traditions of the Eastern Woodlands, Central Plains, Far Western United States, and Canada. Special concern for archaeological problems, reconstruction of these traditions and cultural changes.

ANTH 135 Magic and Folk Religions (3)
3 hours lecture

Transfer acceptability: CSU; UC

Anthropological view of the relationships between magic and religion as expressed in rituals, myths, and art is explored through a survey of the less formal or minor religious systems of the world.

ANTH 140 The Original Californians (3)
3 hours lecture

Note: Cross listed as AIS 140

Transfer acceptability: CSU; UC

Native people of California: Their origin, language, arts, customs, religion, folklore, and music. Special emphasis on Southern California.

ANTH 145 Cultures of the Pacific Rim (3)
3 hours lecture

Transfer acceptability: CSU; UC

Peoples and cultures of the Pacific Rim Nations with a focus on cultural similarities and differences in East Asia, Oceania, and the Americas.

ANTH 150 Introduction to Linguistics (3)
3 hours lecture

Note: Cross listed as ENG 150

Transfer acceptability: CSU; UC

An introduction to the principles and practices of modern language study. Examines the origins and development of language, its social uses and implications, and its structure.

ANTH 155 Ancient Civilizations of Meso America (3)
3 hours lecture

Note: Cross listed as CS 155

Transfer acceptability: CSU; UC

Civilizations of Pre Columbian Mexico and Central America with a focus on their origins and achievements.

ANTH 160 Major Themes and Discoveries in Anthropology (3)

3 hours lecture

Note: May be taken 2 times

Transfer acceptability: CSU; UC - Credit determined by UC upon review of course syllabus.

A general survey of major themes and discoveries in anthropology such as primatology, culture change phenomena, and civilizations of the Old World. Topics will vary from semester to semester.

ANTH 205 Advanced Archaeological Excavation (3)
 1 hour lecture 6 hours laboratory
Recommended preparation: ANTH 120
Note: May be taken 4 times
Transfer acceptability: CSU
 Training in excavating archaeological features. Specialized field techniques. Archaeological theory as it applies to site interpretation.

ANTH 210 Archaeological Surveying (3)
 2 hours lecture 2 hours lecture/laboratory
Recommended preparation: ANTH 120
Transfer acceptability: CSU
 Archaeological surveying techniques including field reconnaissance, use of topographical maps, site recording, and preparation of a project analysis or report.

ANTH 215 Archaeological Laboratory Analysis (3)
 2 hours lecture 2 hours lecture/laboratory
Recommended Preparation: ANTH 120
Transfer acceptability: CSU
 Training in the laboratory analysis of stone, ceramic, bone, and other artifacts as well as elementary archaeological theory, statistics, and report preparation.

ANTH 220 Advanced Archaeological Surveying (3)
 2 hours lecture-2 hours lecture/laboratory
Recommended preparation: ANTH 210
Transfer acceptability: CSU
 Advanced archaeological survey techniques including sample survey, site relocation, and the use of Global Positioning System (GPS) and laser transit hardware and software for site recordation, data conversion, site mapping, and the completion of a mapping program.

ANTH 225 Historical Archaeology (3)
 2 hours lecture-2 hours lecture/laboratory
Recommended preparation: ANTH 120
Note: May not be taken for Credit/No Credit grading
Transfer acceptability: CSU
 Method and theory of historical archaeology, including archival research, artifact identification, and report preparation. Training in the location and interpretation of archival documents, such as Franciscan Mission records, Spanish land grant documents, homestead patents, Sanborn fire insurance maps, assessor's records, and historical topographic maps. Training in the identification of ceramic, glass and metal artifacts and their associated function, method of manufacture, manufacturer, and temporal distribution.

ANTH 296 Special Problems in Anthropology (1,2,3)
 3, 6, or 9 hours laboratory
Note: ANTH 296 and 297 may be taken 4 times as Archaeology AA degree electives for a combined maximum of 6 units.
Transfer acceptability: CSU;UC - Credit determined by UC upon review of course syllabus.
 An individualized or group project in cultural or physical anthropology of any nature approved by the instructor and under the personal supervision of the instructor.

ANTH 297 Special Problems in Archaeology (1,2,3)
 3, 6 or 9 hours laboratory
Note: ANTH 296 and 297 may be taken 4 times as Archaeology AA degree electives for a combined maximum of 6 units.
Transfer acceptability: CSU; UC - Credit determined by UC upon review of course syllabus.
 An individualized or group project in archaeology approved by the instructor and under the personal supervision of the instructor.

Apprenticeship Training (AP)

Carpentry, Drywall/Lather, Electrician, Sheet Metal, Sound and Communication Systems

Contact Occupational & Noncredit programs for further information, (760) 744-1150, ext. 2600

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAMS OF STUDY

A program for the training of apprentices, consisting of full-time, on-the-job employment plus related classroom instruction.

A CERTIFICATE OF ACHIEVEMENT and/or JOURNEYPERSON TRADE CERTIFICATE will be awarded students for each program successfully completed. Students who wish to obtain an Associate in Arts Degree may do so by fulfilling the general graduation requirements in addition to the completion of the apprenticeship courses.

A program is maintained for the training of apprentices in the trades as listed. Students who wish to become apprentices should appear before the appropriate Joint Apprenticeship Committee. Training consists of full-time work on-the-job supplemented by related classroom instruction. All students entered in the apprenticeship work experience program are expected to enter AP WE 110. A maximum of 16 units, credit/no credit only, may be earned in Cooperative Work Experience Education, not to exceed 4 units each semester.

Students whose work or attendance is not satisfactory may be dropped from the program by the College, or other corrective measures may be taken by the Joint Apprenticeship Committee. The College grants academic credit for the successful completion of the training program.

Upon completion of the training program, journeyperson trade certificates and college achievement certificates are awarded at a special completion ceremony.

The final digit in the course number indicates that period of apprenticeship.

SAFETY GLASSES - Education Code 32030-32034 requires that safety glasses be worn in those classes where eye damage might occur. Students in such classes will be so informed by their instructors. Glasses are available at the college bookstore.

Acoustical Installer (AP AC)

A three-year apprenticeship program. Applicants for this program should be directed to the Carpenters Joint Apprenticeship and Training Committee for Southern California, San Diego Carpenters Training Center, 8595 Miralani Drive, San Diego, CA 92126. Telephone (858) 621-2667.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT*

Program Requirements	Units
AP DL 201/	
AP AC 201	Orientation/Safety 1.5
AP DL 202/	
AP AC 202	Safety/Health and Safety Certification 1.5
AP DL 203/	
AP AC 203	Blueprint Reading I 1.5
AP DL 204/	
AP AC 204	Blueprint Reading II 1.5
AP AC 205	Introduction to Acoustical Ceilings and Codes 1.5
AP AC 206	Standard Grids I 1.5
AP AC 207	Standard Grids II 1.5

AP AC 208	Soffits	1.5
AP AC 209	Prefabricated Sound Panels	1.5
AP AC 210	Concealed Systems	1.5
AP AC 211	Compasso	1.5
AP AC 212	Metal Pan and Security Systems	1.5
AP WE 112	Drywall/Acoustical Work Experience	16

TOTAL UNITS **34**

*** Apprenticeship - Acoustical Installer A.A. Degree Major or Certificate of Achievement pending approval by Chancellor's Office at time of catalog publication.**

AP AC 197 Acoustical Topics (1.5-4)

Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.

Note: May be taken 4 times

Topics in Acoustical. See Class Schedule for specific topic offered. Course title will designate subject covered.

AP AC 201 Orientation/Safety (1.5)

1 hour lecture-1 1/2 hours laboratory

Prerequisite: Indentured apprentice to a designated Joint Apprenticeship and Training Committee

Note: Cross listed as AP DL 201; may be taken two times

Introduction to the Interior Systems program. Content includes safe and proper usage of hand tools, power tools, and introduction to trade related math, beginning blueprint reading and layout. Certifications will include scaffold erector/dismantler (welded frame).

AP AC 202 Safety/Health and Safety Certification (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: Cross listed as AP DL 202; may be taken two times

Designed to incorporate learning theories, methods and techniques that meet the needs of the Interior Systems industry. Content includes certification in forklift, Ramset/Red Head, low velocity powder actuated tool, asbestos awareness and American Red Cross First Aid/CPR.

AP AC 203 Blueprint Reading I (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: Cross listed as AP DL 203; may be taken two times

This course is designed to teach the basics of reading, understanding and visualizing the blueprints. Terms, symbols and definitions from several trades will be incorporated. Prints showing both residential and commercial application will be used. Related safety, math and blueprint reading will be covered.

AP AC 204 Blueprint Reading II (1.5)

1 hour lecture-1 1/2 hours laboratory

Prerequisite: A minimum grade of 'C' in AP AC 203/AP DL 203

Note: Cross listed as AP DL 204; may be taken two times

This course will give the student more in depth training related to on the job conditions. Basic estimating, material take offs and organizing jobs will be included.

AP AC 205 Introduction to Acoustical Ceilings and Codes (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Instruction in acoustical ceilings, seismic codes and the theory behind them. Practical application in wall molds and trims, ceiling layout and material identification.

AP AC 206 Standard Grids I (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Instruction in acoustical grid installation such as 2 x 4 and 2 x 2 flat "H" pattern, radius, gable and diagonal ceilings.

AP AC 207 Standard Grids II (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Instruction in the technical skills required to install circular ceilings with drops, drywall suspension grid in both square and circular areas.

AP AC 208 Soffits (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Focus on advanced knowledge and skills required to construct square and slant faced, tapered, concealed, drywall suspension, and sloped soffits.

AP AC 209 Prefabricated Sound Panels (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Instruction in the technical knowledge and skills required for installation of prefabricated wall and ceiling panel systems.

AP AC 210 Concealed Systems (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Instruction in concealed and semi-concealed ceilings and soffits. Both technical knowledge and skills will be used in assembling these ceilings.

AP AC 211 Compasso (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Advanced instruction and application in concealed systems to include installation of air bars, double soffits and compasso. Hand tools are mandatory.

AP AC 212 Metal Pan and Security Systems (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Instruction in the technical knowledge and skills needed to work with these "high end" products. Hand tools and gloves are mandatory.

Carpentry (AP C)

A four-year apprenticeship program. Applicants for this program should be directed to the Carpenters Joint Apprenticeship and Training Committee for Southern California, San Diego Carpenters Training Center, 8595 Miralani Drive, San Diego, CA 92126. Telephone (858) 621-2667.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
AP C 108	Welding	3
AP C 201	Orientation I	1.5
AP C 202	Orientation II	1.5
AP WE 111	Carpentry Work Experience	16

Electives (Select 14 courses)

AP C 203	Blueprint I	1.5
AP C 204	Blueprint II	1.5
AP C 205	Foundations	1.5
AP C 206	Flatworks	1.5
AP C 207	Tilt-Up	1.5
AP C 208	Wall Forms	1.5
AP C 209	Gang Forms	1.5
AP C 210	Patented Forming Systems	1.5
AP C 211	Architectural Concrete	1.5
AP C 212	Column Forms	1.5
AP C 213	Beam & Deck Forming	1.5
AP C 214	Wall Framing I	1.5
AP C 215	Wall Framing II	1.5
AP C 216	Floor Framing	1.5
AP C 217	Stair Building I	1.5

AP C 218	Stair Building II	1.5
AP C 219	Exterior Details I	1.5
AP C 220	Exterior Details II	1.5
AP C 221	Roof Framing I	1.5
AP C 222	Roof Framing II	1.5
AP C 223	Metal Framing	1.5
AP C 224	Commercial Framing	1.5
AP C 225	Formwork Problems	1.5
AP C 226	Bridge Construction	1.5
AP C 227	Stairs & Ramps	1.5
AP C 228	Stair Trim	1.5
AP C 229	Basic Cabinetry	1.5
AP C 230	Cabinetry Installation	1.5
AP C 231	Scaffolding – Orientation I	1.5
AP C 232	Scaffolding – Orientation II	1.5
AP C 233	Scaffolding Introductions	1.5
AP C 234	Interior Scaffolding	1.5
AP C 235	Residential/Commercial Molding	1.5
AP C 236	Plastic Laminates	1.5
AP C 237	Introduction to Door Hardware	1.5
AP C 238	Wood/Metal Jambs and Pre-hung Doors	1.5
AP C 239	Hinge and Door-Closure Hardware	1.5
AP C 240	Cylindrical and Mortise Locksets	1.5
AP C 241	Scaffolding – Planning Procedures	1.5
AP C 242	Scaffolding – Welded/Mobile Frame I	1.5
AP C 243	Scaffolding – Welded Mobile Frame II	1.5
AP C 244	Scaffolding – Welded Mobile Frame III	1.5

TOTAL UNITS **43**

COURSE OFFERINGS

AP C 108 Welding (3)

2 hours lecture-3 hours laboratory

Note: May be taken 2 times

Introduction to trade welding. Emphasis is given to the importance of safe work practices on the construction site and the goal of welder certification. The AWS welding codes for structural, light gauge, and re-bar certifications are reviewed.

AP C 197 Carpentry Topics (.5-4)

Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.

Prerequisite: Indentured apprentice to the Carpenters Joint Apprenticeship and Training Committee for Southern California

Note: May be taken 4 times

Topics in Carpentry. See Class Schedule for specific topic offered. Course title will designate subject covered.

AP C 201 Orientation I (1.5)

1 hour lecture-1/2 hours laboratory

Prerequisite: Indentured apprentice to the Carpenters Joint Apprenticeship and Training Committee for Southern California

Note: May be taken 2 times

This course will introduce the use of various hand and power tools used in the trade. Students will be introduced to the history of trade apprenticeships. Construction math and job site safety practices will also be covered.

AP C 202 Orientation II (1.5)

1 hour lecture-1/2 hours laboratory

Prerequisite: AP C 201

Note: May be taken 2 times

This course will provide the apprentice with various safety competencies. A student will demonstrate the ability to construct a welded frame scaffold to OSHA standards as well as the operation of a lift truck. In addition they will be introduced to blueprints and their use.

AP C 203 Blueprint I (1.5)

1 hour lecture-1/2 hours laboratory

Note: May be taken 2 times

This course is the first of two classes in blueprint reading. The course will cover the fundamental functions and structure of blueprints. Construction drawings, line symbols, freehand sketching as well as pictorial drawings will be covered.

AP C 204 Blueprint II (1.5)

1 hour lecture-1/2 hours laboratory

Prerequisite: AP C 203

Note: May be taken 2 times

This course is the second of two classes in blueprint reading. This course will cover foundation prints, commercial prints, residential prints and estimating. Construction specifications will also be covered.

AP C 205 Foundations (1.5)

1 hour lecture-1/2 hours laboratory

Note: May be taken 2 times

This course will focus on the use of concrete in the construction industry. Basic layout techniques will be studied and applied for foundations. Related safety, math and blueprint reading will be covered.

AP C 206 Flatworks (1.5)

1 hour lecture-1/2 hours laboratory

Note: May be taken 2 times

This course is designed to show the various applications of forming to include slab-on-grade, driveways and walks, and curb and gutter forms. Related safety, math and blueprint reading will be covered.

AP C 207 Tilt-Up (1.5)

1 hour lecture-1/2 hours laboratory

Note: May be taken 2 times

This course is designed to give an overview of the Tilt-up industry. Form techniques and panel hardware will be discussed. Related safety, math and blueprint reading will be covered.

AP C 208 Wall Forms (1.5)

1 hour lecture-1/2 hours laboratory

Note: May be taken 2 times

This course will introduce the basic techniques of poured-in-place concrete wall form construction. Related safety, math and blueprint reading will be covered.

AP C 209 Gang Forms (1.5)

1 hour lecture-1/2 hours laboratory

Note: May be taken 2 times

This course will present the various applications of pre-fabricated wall forming systems. Related safety, blueprint reading will be covered.

AP C 210 Patented Forming Systems (1.5)

1 hour lecture-1/2 hours laboratory

Note: May be taken 2 times

Proprietary wall forming systems such as Atlas, EFCO, and Symons are an integral part of the concrete industry. Students will be instructed in the application and rigging of these systems.

AP C 211 Architectural Concrete (1.5)

1 hour lecture-1/2 hours laboratory

Note: May be taken 2 times

In this course the forming of poured-in-place columns will be covered, with instruction and practice in both job-built.

AP C 212 Column Forms (1.5)

1 hour lecture-1/2 hours laboratory

Note: May be taken 2 times

In this course the forming of poured-in-space columns will be covered, with instruction and practice in both job-built and the proprietary systems, and the shoring and forming of drop heads. Estimating, safety, and rigging of materials will be included. Math and blueprint reading will be covered.

- AP C 213 Beam and Deck Forming (1.5)**
1 hour lecture-1½ hours laboratory
Note: May be taken 2 times
 This course will introduce the use of various wood and patented forming systems used in the construction of concrete beams and decks. Metal beam forms and capitals will be taught in this class. Layout and builders level skills will be used in this class.
- AP C 214 Wall Framing I (1.5)**
1 hour lecture-1½ hours laboratory
Note: May be taken 2 times
 This course provides an introduction to the theory and practice of wall framing. Students start by learning to read floor plans, and then laying out wall locations, plate and detail, as well as openings and structural connections. Construction math and job site safety practices will also be covered.
- AP C 215 Wall Framing II (1.5)**
1 hour lecture-1½ hours laboratory
Prerequisite: AP C 214
Note: May be taken 2 times
 This class covers layout, assembly, and erection of both standard and raked walls. Application of bracing, plumbing and aligning walls will also be covered. Construction math, blueprint reading and job site safety practices will also be covered.
- AP C 216 Floor Framing (1.5)**
1 hour lecture-1½ hours laboratory
Note: May be taken 2 times
 This course will cover the layout and construction of both residential and commercial floor framing. The use of building codes and blueprint reading will be covered. Fall protection along with job site and math will also be covered.
- AP C 217 Stair Building I (1.5)**
1 hour lecture-1½ hours laboratory
Note: May be taken 2 times
 Stair construction is an integral part of carpenter's trade. This course presents stair theory, related mathematics, code requirements and basic layout stringers, treads and risers. Students will layout, cut and erect a straight-run stair. Blueprint reading and safety will also be covered.
- AP C 218 Stair Building II (1.5)**
1 hour lecture-1½ hours laboratory
Prerequisite: AP C 217
Note: May be taken 2 times
 This course builds upon the concepts presented in Stair Building I. This class will teach students about winders, u-shaped and radius stair building, as well as code requirements and mathematical calculations. Blueprint reading and safety will also be covered.
- AP C 219 Exterior Details I (1.5)**
1 hour lecture-1½ hours laboratory
Note: May be taken 2 times
 This course teaches students to read blueprints related to building exteriors such as elevations, sections, and schedules. Construction of structural and architectural elements such as balconies, fireplaces, bay windows, columns and pop-outs. Blueprint reading, mathematical calculations and safety will also be covered.
- AP C 220 Exterior Details II (1.5)**
1 hour lecture-1½ hours laboratory
Prerequisite: AP C 219
Note: May be taken 2 times
 A continuation of Exterior Details I, this course will review the reading of relevant drawings, and include hands-on training in window installation, door and window trim, as well as various sidings and trims. Mathematical calculations and safety will also be covered.
- AP C 221 Roof Framing I (1.5)**
1 hour lecture-1½ hours laboratory
Note: May be taken 2 times
 Roof construction is one of the most challenging and satisfying facets of carpentry. This basic course will introduce rafter theory and layout. Students will construct a gable roof using conventional and truss methods. Mathematical calculations for various rafter lengths and safety will also be covered.
- AP C 222 Roof Framing II (1.5)**
1 hour lecture-1½ hours laboratory
Prerequisite: AP C 221
Note: May be taken 2 times
 This course is a continuation of Roof Framing I, and will review rafter theory, and introduces hip and intersecting roofs, blind valley and dormer construction. Mathematical calculations for various rafter lengths and safety will also be covered.
- AP C 223 Metal Framing (1.5)**
1 hour lecture-1½ hours laboratory
Note: May be taken 2 times
 This course introduces the student to the technology of metal framing. Tools and materials will be covered along with floor and wall construction, including openings and structural connections, and metal truss roof systems. Mathematical calculations for various rafter lengths and safety will also be covered.
- AP C 224 Commercial Framing (1.5)**
1 hour lecture-1½ hours laboratory
Note: May be taken 2 times
 The thrust of this course will be commercial blueprint reading, along with an introduction to balloon wall framing and panelized roof systems. Construction math, blueprint reading and job site safety practices will also be covered.
- AP C 225 Formwork Problems (1.5)**
1 hour lecture-1½ hours laboratory
Note: May be taken 2 times
 This course will address form design, material estimating and problems relative to form construction. Related safety, math and blueprint reading will be covered.
- AP C 226 Bridge Construction (1.5)**
1 hour lecture-1½ hours laboratory
Note: May be taken 2 times
 This course is to give an overview of basic bridge construction. Related safety, math and blueprint reading will be covered.
- AP C 227 Stairs & Ramps (1.5)**
1 hour lecture-1½ hours laboratory
Note: May be taken 2 times
 This course is designed to teach the various techniques used to form stairs and ramp structures. Related safety, math and blueprint reading will be covered.
- AP C 228 Stair Trim (1.5)**
1 hour lecture-1½ hours laboratory
Note: May be taken 2 times
 Covers a variety of moldings, installation for interior stairs, blueprint, and finish schedules, math and related safety regulations.
- AP C 229 Basic Cabinetry (1.5)**
1 hour lecture-1½ hours laboratory
Note: May be taken 2 times
 Introduction to basic cabinet construction. Blueprint and finish schedules will be covered as well as related safety and math.
- AP C 230 Cabinetry Installation (1.5)**
1 hour lecture-1½ hours laboratory
Note: May be taken 2 times
 Students will learn how to install base and wall-hung cabinets, learn scribing techniques, and how to read blueprint and finish schedules. Related safety and math will also be covered.

AP C 231 Scaffolding – Orientation I (1.5)
1 hour lecture-1 ½ hours laboratory
Note: May be taken 2 times
 This course provides instruction in various safety competencies. The Federal Occupational Safety and Health Act (OSHA) as well as California Occupational Safety and Health Act (Cal OSHA) will be covered. Hand tools, power tools, math, and beginning blueprint reading will also be covered.

AP C 232 Scaffolding – Orientation II (1.5)
1 hour lecture-1 ½ hours laboratory
Note: May be taken 2 times
 This course will provide the apprentice instruction in various safety competencies. Students will learn to safely operate a life truck and aerial lift equipment in addition to receiving American Red Cross First Aid/CPR training.

AP C 233 Scaffolding Introductions (1.5)
1 hour lecture-1 ½ hours laboratory
Note: May be taken 2 times
 Introduction to basic layout and assembly of welded frame scaffolding. Calculating leg loads, structure plan views, material estimating and safety, math and blueprint reading will also be covered.

AP C 234 Interior Scaffolding (1.5)
1 hour lecture-1 ½ hours laboratory
Note: May be taken 2 times
 Introduction to the basic layout and assembly of welded frame, tube-and-clamp and rolling tower scaffolding for large interior projects. Calculating leg loads, structural plan views, material estimating and related safety, math and blueprint reading will also be covered.

AP C 235 Residential/Commercial Molding (1.5)
1 hour lecture-1 ½ hours laboratory
Note: May be taken 2 times
 Introduction to various moldings and the specific installation techniques of each. Blueprint, finish schedules, related safety and math will also be covered.

AP C 236 Plastic Laminates (1.5)
1 hour lecture-1 ½ hours laboratory
Note: May be taken 2 times
 Introduction to the manufacture and installation of plastic laminates on horizontal and vertical surfaces to include instruction in cutting and scribing. Blueprint, finish schedules, and related safety and math will also be covered.

AP C 237 Introduction to Door Hardware (1.5)
1 hour lecture-1 ½ hours laboratory
Note: May be taken 2 times
 Introduction to doors and door hardware schedules, specifications and manufacturer's catalogs. Fire codes that govern the hardware industry as well as how to identify various door hardware including locksets, closures, hinges, panic hardware and door sweeps etc. Blueprint, finish schedules, and related safety and math will also be covered.

AP C 238 Wood/Metal Jambs and Pre-hung Doors (1.5)
1 hour lecture-1 ½ hours laboratory
Note: May be taken 2 times
 Introduction to the various types of metal and wood door jambs and instruction on proper assembly. Shop demonstrations will include proper installation and techniques to scribe a new door to an existing jamb. Blueprint, finish schedules, and related safety and math will also be covered.

AP C 239 Hinge and Door-Closure Hardware (1.5)
1 hour lecture-1 ½ hours laboratory
Note: May be taken 2 times
 Introduction to the selection and installation of proper hinge and door-closure hardware, Blueprints, finish schedules, and related safety and math will also be covered.

AP C 240 Cylindrical and Mortise Locksets (1.5)
1 hour lecture-1 ½ hours laboratory
Note: May be taken 2 times
 Introduction to proper selection and installation of cylindrical and mortise locksets and exit devises. Students will gain hands-on experience in the proper selection of power tools for installing various types of locksets in commercial and residential properties. Blueprint, finish schedules, and related safety and math will also be covered.

AP C 241 Scaffolding-Planning Procedures (1.5)
1 hour lecture-1 ½ hours laboratory
Prerequisite: A minimum grade of 'C' in AP C 232
Note: May be taken 2 times
 Prepares students with the necessary skills to assess, plan and execute worksite scaffolding needs to include regulations compliance. Related safety, math and blueprint reading will also be covered.

AP C 242 Scaffolding-Welded/Mobile Frame I (1.5)
1 hour lecture-1 ½ hours laboratory
Prerequisite: A minimum grade of 'C' in AP C 232
Note: May be taken 2 times
 First in a series of three courses designed to prepare students to perform scaffold planning for manual mobile/welded frame towers and proper assembly of approved sub-assembly assignments. Related safety, math and blueprint reading will be covered.

AP C 243 Scaffolding-Welded/Mobile Frame II (1.5)
1 hour lecture-1 ½ hours laboratory
Prerequisite: A minimum grade of 'C' in AP C 242
Note: May be taken 2 times
 Prepares students to perform scaffold planning for manual mobile welded frame towers. Emphasis on proper assembly to include approved sub-assembly assignments. Related safety, math and blueprint reading will be covered.

AP C 244 Scaffolding-Welded/Mobile Frame III (1.5)
1 hour lecture-1 ½ hours laboratory
Prerequisite: A minimum grade of 'C' in AP C 243
Note: May be taken 2 times
 Complete welded scaffold installations and provide proper assembly of approved sub-assemblies. Emphasis on methods for assessing the needs of an installation to include compliance with regulations. Related safety, math and blueprint reading will be covered.

Drywall/Lather (AP DL)

A three-year apprenticeship program. Applicants for this program should be directed to the Carpenters Joint Apprenticeship and Training Committee for Southern California, San Diego Carpenters Training Center, 8595 Miralani Drive, San Diego, CA 92126. Telephone (858) 621-2667.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
AP DL 201/ AP AC 201	Orientation/Safety 1.5
AP DL 202/ AP AC 202	Safety/Health and Safety Certification 1.5
AP DL 203/ AP AC 203	Blueprint Reading I 1.5
AP DL 205	Basic Lathing – Structural Framing 1.5
AP DL 206	Ceilings & Soffits 1.5
AP DL 207	Basic Framing – Material Identification 1.5
AP DL 208	Advanced Framing/Suspended Ceilings 1.5
AP DL 209	Advanced Framing – Curves & Arches 1.5

AP DL 210	AWS Certification – Welding – Light Gage	1.5
AP WE 112	Drywall/Acoustical Work Experience	16

Electives (Select 3 courses)

AP DL 204/		
AP AC 204	Blueprint Reading II	1.5
AP DL 211	LA City Certification – Welding – Light Gage	1.5
AP DL 212	Drywall Finishing	1.5
AP DL 213	Acoustical Ceilings	1.5
AP DL 214	Doors and Door Hardware	1.5
AP DL 215	Exterior Insulation and Finish Systems	1.5
AP DL 216	Firestopping	1.5
AP DL 217	Freeform Lathing	1.5
AP DL 218	Machine Taping	1.5
AP DL 219	Hand Taping	1.5
AP DL 220	Gypsum Board Application and Finish Trim	1.5
AP DL 221	Advanced Hand Tool Finishing	1.5
AP DL 222	Advanced Machine Tool Finishing	1.5

TOTAL UNITS **34**

COURSE OFFERINGS**AP DL 197 Drywall/Lather Topics (1.5-4)**

Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.

Prerequisite: Indentured apprentice to the Carpenters Joint Apprenticeship and Training Committee for Southern California

Note: May be taken 4 times

Topics in Drywall/Lather. See Class Schedule for specific topic offered. Course title will designate subject covered.

AP DL 201 Orientation/Safety (1.5)

1 hour lecture-1 ½ hours laboratory

Prerequisite: Indentured apprentice to a designated Joint Apprenticeship and Training Committee

Note: Cross listed as AP AC 201; may be taken two times

Introduction to the Interior Systems program. Content includes safe and proper usage of hand tools, power tools, and introduction to trade related math, beginning blueprint reading and layout. Certifications will include scaffold erector/dismantler (welded frame).

AP DL 202 Safety/Health and Safety Certification (1.5)

1 hour lecture-1 ½ hours laboratory

Note: Cross listed as AP AC 202; may be taken two times

Designed to incorporate learning theories, methods and techniques that meet the needs of the Interior Systems industry. Content includes certification in forklift, Ramset/Red Head, low velocity powder actuated tool, asbestos awareness and American Red Cross First Aid/CPR.

AP DL 203 Blueprint Reading I (1.5)

1 hour lecture-1 ½ hours laboratory

Note: Cross listed as AP AC 203; may be taken two times

This course is designed to teach the basics of reading, understanding and visualizing the blueprints. Terms, symbols and definitions from several trades will be incorporated. Prints showing both residential and commercial application will be used. Related safety, math and blueprint reading will be covered.

AP DL 204 Blueprint Reading II (1.5)

1 hour lecture-1 ½ hours laboratory

Prerequisite: A minimum grade of "C" in AP DL 203/AP AC 203

Note: Cross listed as AP AC 204; may be taken two times

This course will give the student more in depth training related to on the job conditions. Basic estimating, material take offs and organizing jobs will be included.

AP DL 205 Basic Lathing – Structural Framing (1.5)

1 hour lecture-1 ½ hours laboratory

Note: May be taken 2 times

This course will cover the different styles and techniques of structural framing compared to light gage framing. Proper waterproofing, lath or drywall and trim will be explained, demonstrated and applied to the framing. Related safety, math and blueprint reading will be covered.

AP DL 206 Ceilings & Soffits (1.5)

1 hour lecture-1 ½ hours laboratory

Note: May be taken 2 times

This course is designed to provide instruction in the basics of framing ceilings and soffits with drywall and lath application. Related safety, math and blueprint reading will be covered.

AP DL 207 Basic Framing – Material Identification (1.5)

1 hour lecture-1 ½ hours laboratory

Note: May be taken 2 times

An in-depth study of basic material identification, print layout, framing, drywall applications and proper trim applications for the Drywall/Lath industry. Safety, math and blueprint reading will be covered.

AP DL 208 Advanced Framing/Suspended Ceilings (1.5)

1 hour lecture-1 ½ hours laboratory

Note: May be taken 2 times

This course is designed to provide related classroom instruction with the technical skills and knowledge to successfully frame any suspended ceiling in drywall and lath. Related hand and power tool safety, math and blueprint reading will be covered.

AP DL 209 Advanced Framing – Curves & Arches (1.5)

1 hour lecture-1 ½ hours laboratory

Note: May be taken 2 times

This course is designed to teach curves and arches, barrel ceilings, radius walls and soffits. Related hand and power tool safety, math and blueprint reading will be covered.

AP DL 210 AWS Certification – Welding – Light Gage (1.5)

1 hour lecture-1 ½ hours laboratory

Note: May be taken 2 times

This course is designed to teach the practical skills needed for the arc welding processes and applications. Students will have the practical skills to successfully pass the AWS light gage certification. Related safety, codes and materials will be covered.

AP DL 211 LA City Certification – Welding – Light Gage (1.5)

1 hour lecture-1 ½ hours laboratory

Note: May be taken 2 times

Assists students in preparing for the Los Angeles City Light Gage Welding Certification. Written and practical skills of the test will be demonstrated and discussed in order to associate the student with the working knowledge necessary to successfully achieve a Los Angeles City Light Gage Welding Certification. Related safety, codes and materials will be covered.

AP DL 212 Drywall Finishing (1.5)

1 hour lecture-1 ½ hours laboratory

Note: May be taken 2 times

This course is designed to give the apprentice a full perspective of the finish trade. Blueprint and finish schedules will be covered. The basic gypsum board applications and finish trims will be explored. The various tools used from basic hand tools such as the "bazooka", boxes and nail spotters will also be covered. Related safety and math will be included.

AP DL 213 Acoustical Ceilings (1.5)

1 hour lecture-1 ½ hours laboratory

Note: May be taken 2 times

This course is designed to provide the apprentice with the knowledge and application of Acoustical ceilings, seismic codes and the supporting theory. Wall molds and trims, and ceiling layouts will be covered. Blueprints reading will cover terms, symbols and definitions for both commercial and residential projects. Related safety, math, safety codes and materials will be covered.

AP DL 214 Doors and Door Hardware (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Introduction to the basic installation of door frames and various types of doors. Lock sets, closures, hinges, panic hardware, and door sweeps will be discussed and demonstrated.

AP DL 215 Exterior Insulation and Finish Systems (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Introduction to the basic working knowledge and technical skills needed to successfully install Exterior Insulation and Finish Systems EIFS (foam products) to meet industry specifications and standards. Introduction to the proper usage of products and materials will be discussed and used.

AP DL 216 Firestopping (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Emphasis on the correct methods, technical skills and firestop materials required to complete a Firestop System. Firestopping is a complete fire containment system designed to prevent the passage of fire, smoke and hot gasses from one side of a rated wall/ceiling assembly to another.

AP DL 217 Freeform Lathing (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Introduction to the techniques and skills needed for construction of freeform lath projects. Layout techniques using grids and projection overlay will be presented. Methods for bending and shaping of rebar and pencil rod, lath handling and tying along with welding and cutting techniques will be demonstrated and applied.

AP DL 218 Machine Taping (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Advanced instruction in blueprints and finish schedules and machine parts identification as well as proper use, assembly and breakdown of tools.

AP DL 219 Hand Taping (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Instruction in blueprints, specifications and finish schedules, taping techniques, trade terminology and sequences of operations for hand taping.

AP DL 220 Gypsum Board Application and Finish Trim (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Instruction in the basics of gypsum board application and finish trims.

AP DL 221 Advanced Hand Tool Finishing (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

This course will give more in depth instruction in hand tool use. The different operations, phases and materials to be used in order to have information of what a finished product should look like.

AP DL 222 Advanced Machine Tool Finishing (1.5)

1 hour lecture-1 1/2 hours laboratory

Note: May be taken 2 times

Instruction in the proper methods and sequences of the "bazooka", flat boxes, nail spotters and angle boxes.

Electrician (AP E)

Applications for Riverside/San Bernardino/Mono/Inyo counties should apply to the Riverside and San Bernardino Joint Electrical Apprenticeship Training Committees, 1655 East Riverview Drive, San Bernardino, CA 92408. Telephone: (909)796-9340.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
AP E 101	Electrical Trade/Industry/DC/Conduit	4
AP E 102	Electrical Theory/Practice/Blueprint Reading	4
AP E 103	Inductance/Capacitance Theory	4
AP E 104	Transformers/Code Calculations/Conduit	4
AP E 105	Electronic/Industrial Blueprints	4
AP E 106	Grounding/Electrical Services/Connection	4
AP E 107	Motor Control/Pilot Devices/Starters	4
AP E 108	Digital Electronics	4
AP E 109	Mgmt/Alarms/Testing/Wiring	4
AP E 110	Programmable Logic Controllers	4
AP WE 113	Electrician Work Experience	16
TOTAL UNITS		56

COURSE OFFERINGS

AP E 101 Introduction to the Electrical Trade and Industry, DC Theory and Conduit Bending (4)

3 hours lecture-3 hours laboratory

Prerequisite: Completion of the following: (1) One semester of Algebra I with a grade of 'C' or better; (2) Designated tests with a passing grade determined by the appropriate committee; (3) Indentured apprentice to the San Diego Electrical Joint Apprenticeship and Training Committee or the Riverside and San Bernardino Joint Electrical Apprenticeship Training Committee

Note: May be taken 2 times

Orientation to the electrical industry; introduction to the electrical code; fundamentals of wiring methods, fastening devices, electrical conductors, circuits, and voltage.

AP E 102 Electrical Theory, Practice and Blueprint Reading (4)

3 hours lecture-3 hours laboratory

Prerequisite: AP E 101

Note: May be taken 2 times

Study of floor and plot plan; basic blueprint reading and circuit drawing; theory of magnetism; DC and AC generators; motors and transformers; on-the-job safety and first aid, and the electrical code.

AP E 103 Inductance and Capacitance Theory and Codeology (4)

3 hours lecture-3 hours laboratory

Prerequisite: AP E 102

Note: May be taken 2 times

Review of the International Brotherhood of Electrical Workers constitution and local union by-laws. Study of the effects of inductance and capacitance on current and voltage. Application of phase angle calculation and the National Electric Code. Overview of workplace problems due to drug abuse.

AP E 104 Transformers and Code Calculations, Conduit Bending and Blueprints (4)

3 hours lecture-3 hours laboratory

Prerequisite: AP E 103

Note: May be taken 2 times

Study of transformers theory, installation, connection and distribution systems. Performing short circuit calculations, selecting of building wire for specific applications, calculating loads for residential and multifamily loads and service feeders. Applying conduit bending principles using mechanical benders to fabricate segmented concentric bends.

AP E 105 Introduction to Electronics and Industrial Blueprints (4)

3 hours lecture-3 hours laboratory

Prerequisite: AP E 104

Note: May be taken 2 times

Introduction to basic electronics including examination of semiconductor devices, current and voltage manipulation, applications, and blueprint reading.

AP E 106 Grounding, Electrical Services, and Transform Three-Phase Connections (4)

3 hours lecture-3 hours laboratory

Prerequisite: AP E 105

Note: May be taken 2 times

Study of requirements for electrical services installation. Study of electrical grounding including merits, impact on safety, ground fault protection, and identification of grounding system elements and functions.

AP E 107 Electrical Motor Control, Pilot Devices, Starters and Relays (4)

3 hours lecture-3 hours laboratory

Prerequisite: AP E 106

Note: May be taken 2 times

Study of controls and circuits, pilot devices, starters, and relays. Includes the analysis and development of circuits, the installation and service of electrical equipment, and the electrical code.

AP E 108 Digital Electronics (4)

3 hours lecture-3 hours laboratory

Prerequisite: AP E 107

Note: May be taken 2 times

Introduction to digital electronic technology and electronic equipment. Instruction includes basic digital systems, binary and decimal numbering systems, decision-making logic circuits, Boolean Algebra, flip-flops, counters, shift registers, encoders, decoders, ROMs, DC to AC converters and organization of these component blocks to accomplish manipulation of data.

AP E 109 Management, Fire Alarms, High Voltage Testing, and Telephone and Security Wiring (4)

3 hours lecture-3 hours laboratory

Prerequisite: AP E 108

Note: May be taken 2 times

Introduction to management and marketing practices, installation of fire alarm systems and the National Electric Code as it relates to alarm installation and high voltage of telephone wiring and security systems.

AP E 110 Programmable Logic Controllers (4)

3 hours lecture-3 hours laboratory

Prerequisite: AP E 109

Note: May be taken 2 times

Introduction to basic input/output hardware, processors and memory numbering systems associated with programmable controllers. Instruction includes use of personal computer to create and modify ladder diagrams and relay instructions, using solid state logic elements, counters, and shift registers. Principles of process control are explained and principle components are identified.

AP E 197 Electrical Topics (.5-4)

Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.

Prerequisite: Indentured apprentice to the San Diego Electrical Joint Apprenticeship and Training Committee or the Riverside and San Bernardino Joint Electrical Apprenticeship Training Committee

Note: May be taken 4 times

Concentrated courses on electricity. Course title will designate subject covered.

Inside Wireman (AP IW)

A five-year apprenticeship program. Applicants for San Diego/Imperial counties should apply to the San Diego Electrical Training Trust, 4675 Viewridge Avenue, Suite D, San Diego, CA 92123. Telephone: (858) 569-6322, ext. 111.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements

	Units
AP IW 101 Introduction to the Electrical Trade	4
AP IW 102 Electrical Theory, Practice and Blueprint Reading	4
AP IW 103 Inductance and Capacitance Theory	4
AP IW 104 Transformer, Motors, and Motor Controls	4
AP IW 105 Special Electrical Systems	4
AP IW 106 Specialized Electrical Applications	4
APWE 113 Electrician Work Experience	16

Electives (Select 16 units)

AP IW 107 Advanced Electronics I	4
AP IW 108 Advanced Electronics II	4
AP IW 109 Advanced Motor Controls	2
AP IW 110 AutoCAD	4
AP IW 111 Electric Motor Drives	4
AP IW 112 Introduction to Computers	4
AP IW 113 Jobsite Supervision	4
AP IW 114 Journeyman Certification Preparation	4
AP IW 115 Low Voltage	4
AP IW 116 Photovoltaics	4
AP IW 117 Service Equipment	2
AP IW 118 Test Equipment	2
AP IW 119 Welding	2
AP IW 120 Instructional Leadership	4
AP IW 121 Programmable Logic Controllers	4
AP IW 197 Inside Wireman Topics	.5 - 4

TOTAL UNITS

56

AP IW 101 Introduction to the Electrical Trade (4)

3 hours lecture-3 hours laboratory

Prerequisite: One semester of Algebra I with a grade of "C" or better, designated tests with a passing grade determined by the appropriate committee, and indentured apprentice to the San Diego Electrical Joint Apprenticeship and Training Committee or the Riverside and San Bernardino Joint Electrical Apprenticeship Training Committee.

Note: May be taken 2 times

Introduction to the electrical industry, with emphasis on jobsite safety, basic conduit bending, National Electric Code (NEC), sexual harassment, introduction to blueprints, tools and their use. Particular attention will be given to fastening devices, basic mathematics, resistance, voltage, power in DC series, parallel, and combination circuits.

AP IW 102 Electrical Theory, Practice and Blueprint Reading (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 101

Note: May be taken 2 times

Survey of drug awareness, Union Constitution and Bylaws, parliamentary procedure, test instruments, 3Ø electrical systems, DC and AC power generation, specialized conduit bending techniques, National Electric Code (NEC), solid state devices, blueprint analysis, AC theory, transformers, vector analysis, impedance, voltage, power in AC series, parallel, and combination circuits.

AP IW 103 Inductance and Capacitance Theory (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 102

Note: May be taken 2 times

Study of circuit analysis techniques, power factor, semiconductors, AC system grounding and bonding, ground fault protection systems, overcurrent protective devices (fuse and circuit breakers), test instruments, National Electric Code (NEC), and industrial blueprint analysis.

AP IW 104 Transformer, Motors, and Motor Controls (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 103

Note: May be taken 2 times

Study of real-world application of transformer, motor and motor control concepts utilizing extensive hands-on labs and demonstrations. Students work in foremen-led teams to design, build, and test motor control circuits. Students will gain

familiarity with a wide array of test instruments including DMMs, voltage testers, megohmmeters, clamp-on ammeters, capacitance testers and other equipment.

AP IW 105 Special Electrical Systems (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 104

Note: May be taken 2 times

Introduction to telephony and data networks, fire alarm systems, nurse call systems, Programmable Logic Controllers (PLCs), arc-flash protection, and instrumentation concepts, National Electric Code (NEC), and OSHA rules and regulations.

AP IW 106 Specialized Electrical Applications (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 105

Note: May be taken 2 times

Introduction to electrical power quality, CATV and CCTV Systems, security systems, fiber optics, hazardous locations, lighting protection, advanced conduit bending, HVAC principles and controls, blueprints, and leadership skills.

AP IW 107 Advanced Electronics I (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106

Note: May be taken 2 times

Comprehensive study of DC circuits, AC circuits and semiconductor power electronic devices and circuits for future applications. Emphasis is placed on schematic interpretation and testing with troubleshooting techniques for electrical and electronic circuits and systems. Integrating theory and lab, this class employs project-based learning techniques and team-based labs to emphasize practical application, teamwork, and communication skills.

AP IW 108 Advanced Electronics II (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106

Note: May be taken 2 times

Study of the essential concepts of digital electronics by constructing and programming a micro-computer, computer interface, and programmable-robot. A strong emphasis is placed on schematic interpretation and testing and troubleshooting techniques for electrical and electronic circuits and systems.

AP IW 109 Advanced Motor Controls (2)

1½ hours lecture-1½ hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106

Note: May be taken 2 times

Study of advanced techniques for control system installations of motors and related equipment, utilizing field-proven techniques for installation, start-up, control system documentation, and trouble-shooting. Students will become familiar with industry-standard control configurations that are used in a variety of installation scenarios. Specialized control devices will be examined.

AP IW 110 AutoCAD (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106 and a minimum grade of 'C' in AP IW 112

Note: May be taken 2 times

Application of a step-by-step approach to the commands of AutoCAD LT. Topics include application fundamentals, drawing setup, file operations, commands, object properties, dimensioning, menus, drawing management, and AutoCAD LT applications in the electrical trade.

AP IW 111 Electric Motor Drives (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106 and a minimum grade of 'C' in AP IW 109

Note: May be taken 2 times

Comprehensive study of the technology behind and installation requirements for electric motor drives. Topics include motor load analysis, electric motor drive operation fundamentals, drive startup procedures, and drive testing and troubleshooting.

AP IW 112 Introduction to Computers (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106

Note: May be taken 2 times

Instruction in basic computer skills. Topics include basic personal computer design and construction, computer operating systems, and select applications. Internet applications, basic keyboarding, computer peripherals, file structures, and data management techniques will be examined.

AP IW 113 Jobsite Supervision (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106

Note: May be taken 2 times

An overview of all processes required to run a successful job. The class utilizes field trips and speakers to give the student a 360° view of the workplace. Each speaker will bring expertise from the field into the classroom where students will learn the right and the wrong way to organize and run a jobsite.

AP IW 114 Journeyman Certification Preparation (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106

Note: May be taken 2 times

Designed to prepare the student for the California Electrician Certification Examination (CECE). The class provides a review of concepts and principles, but focuses primarily on understanding and applying the national Electric Code (NEC), the set of standards upon which the CECE is based.

AP IW 115 Low Voltage (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106

Note: May be taken 2 times

Study of technologies and installation requirements for low voltage systems. Subjects presented in this course are Low Voltage Design and Specification Techniques, Fiber Optics, LAN Cabling Systems, IEEE Grounding Requirements for Electronic Equipment, Power Quality to Support Low Voltage Systems, Telephone Systems, Nurse Call, and CCTV.

AP IW 116 Photovoltaics (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106

Note: May be taken 2 times

Technologies and installation requirements for photovoltaic systems. Subjects presented in this course are renewable energy construction, renewable energy resources, renewable energy efficiency, and energy savings devices used in construction.

AP IW 117 Service Equipment (2)

1½ hours lecture-1½ hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106

Note: May be taken 2 times

Presentation of the technologies and skill sets required for installing and provisioning an electrical service for commercial or industrial facilities. Topics presented in this course include electrical distribution overview, safety, OSHA requirements, shoring, trenching, Sempra Service Guide requirements, rigging, IEEE Standards, and National Electrical requirements (Article 230) for an electrical service.

AP IW 118 Test Equipment (2)

1½ hours lecture-1½ hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106

Note: May be taken 2 times

The technologies and skill sets required for testing and troubleshooting electrical distribution systems and associated hardware including electric motors and drives. The topics presented in this course include testing procedures, test equipment, testing documentation, lighting and branch circuit analysis and troubleshooting.

AP IW 119 Welding (2)

1½ hours lecture-1½ hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106

Note: May be taken 2 times

Basic understanding of cutting torch and electrical resistance welding principles and techniques. Covers safe storage, transportation, and use of acetylene, oxygen, and chemelene (MAPP) gases for cutting, as well as "stick" and wire-feed welding safety and technique. Upon completion of the course students will be able to weld in vertical, overhead and horizontal positions.

AP IW 120 Instructional Leadership (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106

Note: May be taken 2 times

Study of technical course development and delivery techniques for the electrical trade, utilizing classroom-proven techniques. The student will familiarize him/herself with classroom management, testing and assessment techniques, curriculum development and material presentation based on industry-standard and college level instructional methodologies.

AP IW 121 Programmable Logic Controllers (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP IW 106 and a minimum grade of 'C' in AP IW 109 and a minimum grade of 'C' in AP IW 112

Note: May be taken 2 times

Provides an in-depth study of programmable logic controllers (PLC) while examining standard programming languages and common PLC hardware applications. This course focuses on the underlying principles of PLCs and provides practical information on installing, programming, maintaining, and troubleshooting PLCs.

AP IW 197 Inside Wireman Topics (.5-4)

Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.

Note: May be taken 4 times

Topics in Inside Wireman. See Class Schedule for the specific topic offered. Course title will designate subject covered.

Sheet Metal (AP SM)

A five-year apprenticeship program. Applicants for this program should be directed to the San Diego Sheet Metal Joint Apprenticeship and Training Committee, 4596 Mission Gorge Place, San Diego, CA 92120. Telephone (619) 265-2758.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
AP SM 101 Core I	4
AP SM 102 Core II	4
AP SM 103 Core III	4
AP SM 104 Core IV	4
AP SM 105 Sheet Metal Welding	3
AP SM 106 Plans & Specifications	4
AP SM 107 Construction Plan Problem Solving	4
AP SM 108 Introduction to Basic Refrigeration	4
AP SM 109 Foreman and Project Management Training	4
AP SM 110 Architectural Problem Solving	4
AP WE 110 Sheet Metal Work Experience	16
TOTAL UNITS	55

COURSE OFFERINGS

AP SM 101 Core I (4)

3 hours lecture-3 hours laboratory

Prerequisite: Indentured apprentice to the San Diego Sheet Metal Joint Apprenticeship and Training Committee

Note: May be taken 2 times

An introduction to the basic principles, processes, drawings, materials and practices used in the sheet metal industry.

AP SM 102 Core II (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP SM 101

Note: May be taken 2 times

A continuation of basic sheet metal processes as well as an introduction to simple sheet metal forming processes.

AP SM 103 Core III (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP SM 102

Note: May be taken 2 times

An introduction to intermediate sheet metal processes demonstrating job layout, architectural details and construction techniques with problems of unusual complexity and difficulty.

AP SM 104 Core IV (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP SM 103

Note: May be taken 2 times

A continuation of intermediate processes with problems of unusual difficulty and complexity.

AP SM 105 Sheet Metal Welding (3)

1½ hours lecture-4½ hours laboratory

Prerequisite: AP SM 104

Note: May be taken 2 times

An introduction to the basic principles and methods of gas and arc welding used in the sheet metal industry. Includes codes, standards, welding theory and the practical application using prescribed welding procedures and equipment.

AP SM 106 Plans and Specifications (4)

3 hours lecture-3 hours laboratory

Prerequisite: AP SM 105

Note: May be taken 2 times

An introduction to the language and organization of plans and specifications for sheet metal projects. Topics will include architectural, structural, mechanical and electrical drawings as well as how to write and implement a change order to plans and specifications.

AP SM 107 Construction Plan Problem Solving (4)

3 hours lecture-3 hours laboratory

Prerequisite: AP SM 106

Note: May be taken 2 times

Learn to apply detailing and research skills to create changes to plans and specifications using intermediate process problems of unusual complexity and difficulty.

AP SM 108 Introduction to Basic Refrigeration (4)

3 hours lecture-3 hours laboratory

Prerequisite: AP SM 107

Note: May be taken 2 times

An introduction to the physical components and systems of a basic HVAC system as well as hands-on techniques for startup and basic system troubleshooting.

AP SM 109 Foreman and Project Management Training (4)

3 hours lecture-3 hours laboratory

Prerequisite: AP SM 108

Note: May be taken 2 times

Overview of the knowledge, skills and abilities required to effectively perform as a foreman and project manager in the sheet metal industry.

AP SM 110 Architectural Problem Solving (4)

3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP SM 109

Note: May be taken 2 times

Overview of the knowledge, skills, and abilities of advanced architectural project performance.

AP SM 197 Sheet Metal Topics (5-4)
 Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Prerequisite: Indentured apprentice to the San Diego Sheet Metal Joint Apprenticeship and Training Committee
Note: May be taken 4 times
 Topics in Sheet Metal. See Class Schedule for specific topic offered. Course title will designate subject covered.

Sound and Communication Systems Installer (AP SC)

A three-year apprenticeship program. Applicants for this program should be directed to the Riverside and San Bernardino Joint Electrical Apprenticeship Training Committees, 1655 East Riverview Drive, San Bernardino, CA 92408. Telephone: (909) 796-9340.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
AP SC 101 Intro to Sound/Communication Trade Industry	4
AP SC 102 Electrical Theory and Practices DC	4
AP SC 103 Electrical Theory and Practices AC	4
AP SC 104 Semiconductor Electronics	4
AP SC 105 Intro to Digital Electronics	4
AP SC 106 Management/Alarms/Codes/Circuits	4
APWE 113 Electrician Work Experience	16
TOTAL UNITS	40

Sound Technician (AP SC)

A four-year apprenticeship program. Students will work in the field during the day and attend class in the evenings. Each apprentice is paid for field work with regularly scheduled pay increases based on required work hours and completion of classroom instruction. Upon completion of this program, students will receive a certificate of completion from the California Division of Apprenticeship Standards and Journeyman Sound Technician status in the I.B.E.W. All students must be indentured Sound Technical apprentices to be eligible for the course. Interested applicants from San Diego/Imperial counties should apply to the San Diego Electrical Training Trust, 4675 Viewridge Avenue, Suite D, San Diego, CA 92123. Telephone: (858) 569-6322.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
AP SC 101 Intro to the Sound/Communication Trade Industry	4
AP SC 102 Electrical Theory and Practices DC	4
AP SC 103 Electrical Theory and Practices AC	4
AP SC 104 Semiconductor Electronics	4
AP SC 105 Introduction to Digital Electronics	4
AP SC 106 Management/Alarms/Codes/Circuits	4
AP SC 107 Life Safety and Security System Applications	4
AP SC 108 Specialized Systems and Supervision Techniques	4
APWE 113 Electrician Work Experience	16
TOTAL UNITS	48

COURSE OFFERINGS

AP SC 101 Introduction to the Sound and Communication Trade Industry (4)
 3 hours lecture-3 hours laboratory
Prerequisite: A minimum grade of 'C' in MATH 50. Completion of designated tests with a passing grade determined by the appropriate committee. Indentured

Apprentice to the Riverside, San Bernardino, Mono, and Inyo Counties Sound and Communications Joint Apprenticeship Committee or the San Diego Sound & Communications Joint Apprenticeship Committee
Note: May be taken 2 times
 Introduction to the sound and communication industry, electrical code, fundamentals of wiring methods, fastening devices, electrical conductors, circuits, voltage and data communication.

AP SC 102 Electrical Theory and Practices DC (4)
 3 hours lecture-3 hours laboratory
Prerequisite: AP SC 101
Note: May be taken 2 times
 Study of floor and plot plans, basic blueprint reading and circuit drawing, theory of magnetism, DC and AC generators, motors and transformers, on-the-job safety, first aid, electrical code, telephony and data communications.

AP SC 103 Electrical Theory and Practices AC (4)
 3 hours lecture-3 hours laboratory
Prerequisite: AP SC 102
Note: May be taken 2 times
 Study of apprenticeship, electrical inductance, capacitance and reactance, including grounded conductors, branch circuits, transformer principles, RCL circuits and filters.

AP SC 104 Semiconductor Electronics (4)
 3 hours lecture-3 hours laboratory
Prerequisite: AP SC 103
Note: May be taken 2 times
 Study of solid-state electronic theory and components, diodes, transistors, SCR, triacs, diacs, IC amplifiers and op amps.

AP SC 105 Introduction to Digital Electronics and Signaling Devices (4)
 3 hours lecture-3 hours laboratory
Prerequisite: AP SC 104
Note: May be taken 2 times
 Introduction to digital electronic technology and electronic equipment. Instruction includes basic digital systems, binary and decimal numbering systems, decision-making logic circuits, Boolean Algebra, flip-flops, counters, shift registers, encoders, decoders, ROMs, DC to AC converters and organization of these component blocks to accomplish manipulation of data.

AP SC 106 Management/Alarms/Codes/Circuits (4)
 3 hours lecture-3 hours laboratory
Prerequisite: AP SC 105
Note: May be taken 2 times
 Introduction to management, installation of security and fire alarm systems, the National Electrical Code as it relates to alarm installation and circuits as applied to alarm systems.

AP SC 107 Life Safety and Security System Application (4)
 3 hours lecture-3 hours laboratory
Prerequisite: AP SC 106
Note: May be taken 2 times
 Continuation of digital theory studies. Instruction expands coverage of Life Safety Systems, and introduces the theory and application of Nurse Call Systems and Security Systems with an emphasis on closed circuit television (CCTV) installation.

AP SC 108 Specialized Systems and Supervision Techniques (4)
 3 hours lecture-3 hours laboratory
Prerequisite: AP SC 107
Note: May be taken 2 times
 Study of specialized building systems including cable television systems (CATV), master antenna systems (MATV), and building automation systems. Training will cover aspects of job administration including personal computer use, job estimating, customer relations, and building system startup procedures.

AP SC 197 Sound and Communication Systems Installer Topics (.5-4)

Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.

Prerequisite: Indentured apprentice to the Riverside, San Bernardino, Mono, and Inyo Counties Sound and Communications Joint Apprenticeship Committee or the San Diego Sound & Communications Joint Apprenticeship Committee

Note: May be taken 4 times

Topics in Sound and Communication Systems Installer. See Class Schedule for specific topic covered. Course title will designate subject covered.

Work Experience AP WE**AP WE 110 Sheet Metal Work Experience (4)**
12 hours laboratory

Prerequisite: Indentured apprentice to a designated Joint Apprenticeship and Training Committee

Note: Credit/No Credit grading only; may be taken 4 times Supervised on-the-job training in the Sheet Metal Trade.

AP WE 111 Carpentry Work Experience (4)
12 hours laboratory

Prerequisite: Indentured apprentice to a designated Joint Apprenticeship and Training Committee

Note: May be taken 4 times; Credit/No Credit grading only Supervised on-the-job training in the Carpentry trade.

AP WE 112 Drywall/Acoustical Work Experience (4)
12 hours laboratory

Prerequisite: Indentured apprentice to a designated Joint Apprenticeship and Training Committee

Note: May be taken 4 times; Credit/No Credit grading only Supervised on-the-job training in the Interior Systems Trade.

AP WE 113 Electrician Work Experience (4)
12 hours laboratory

Prerequisite: Indentured apprentice to a designated Joint Apprenticeship and Training Committee

Note: May be taken 4 times; Credit/No Credit grading only Supervised on-the-job training in the Electrician trade.

Arabic (ARAB)

Contact the Foreign Languages Department for further information, (760) 744-1150, ext. 2390

COURSE OFFERINGS**ARAB 101A Arabic IA (3)**
3 hours lecture

Note: Covers the first half of first semester Arabic.

Transfer acceptability: CSU; UC

Arabic 101A and 101B are equivalent to the first semester of an elementary level course in Arabic. This elementary level course is a study of the Arabic language and Arabic-speaking cultures, with emphasis on the development of communicative skills and basic structures. This beginning-level course is for students with no previous coursework in Arabic.

ARAB 101B Arabic IB (3)
3 hours lecture

Prerequisite: ARAB 101A or one year of high school Arabic

Note: Covers the second half of first semester Arabic.

Transfer acceptability: CSU; UC

Arabic 101A and 101B are equivalent to the first semester of an elementary level course in Arabic. ARAB 101B is a continuation of ARAB 101A. This elementary level course is a study of the Arabic language and Arabic-speaking cultures, with emphasis on the development of communicative skills and basic structures.

ARAB 102A Arabic IIA (3)

3 hours lecture

Prerequisite: ARAB 101B or two years of high school Arabic

Note: Covers the first half of second semester Arabic.

Transfer acceptability: CSU; UC

Arabic 102A and 102B are equivalent to the second semester of an elementary level course in Arabic. This elementary level course is a study of the Arabic language and Arabic-speaking cultures, with emphasis on the development of communicative skills and basic structures.

ARAB 102B Arabic IIB (3)

3 hours lecture

Prerequisite: ARAB 102A or two years of high school Arabic

Note: Covers the second half of second semester Arabic.

Transfer acceptability: CSU; UC

Arabic 102A and 102B are equivalent to the second semester of an elementary level course in Arabic. Arabic 102B is a continuation of Arabic 102A. This elementary level course is a study of the Arabic language and Arabic-speaking cultures, with emphasis on the development of communicative skills and basic structures.

ARAB 201A Arabic IIIA (3)

3 hours lecture

Prerequisite: ARAB 102B or three years of high school Arabic

Note: Covers the first half of third semester Arabic.

Transfer acceptability: CSU; UC

Arabic 201A and 201B are equivalent to the third semester of an intermediate course in Arabic. This intermediate level course is a study of the Arabic language and Arabic-speaking cultures, focusing on intermediate level structures and readings of culturally relevant authentic materials. Emphasis is on developing oral, listening, reading and writing skills in order to acquire proficiency in Arabic. Class is largely conducted in Arabic.

ARAB 201B Arabic IIIB (3)

3 hours lecture

Prerequisite: ARAB 201A

Note: Covers the second half of third semester Arabic.

Transfer acceptability: CSU; UC

Arabic 201A and 201B are equivalent to the third semester of an intermediate level course in Arabic. ARAB 201B is a continuation of ARAB 201A. This intermediate level course is a study of the Arabic language and Arabic-speaking cultures, focusing on intermediate level structures and readings of culturally relevant authentic materials. Emphasis is on developing oral, listening, reading and writing skills in order to acquire proficiency in Arabic. Class is largely conducted in Arabic.

Art (ART)

Contact the Art Department for further information, (760) 744-1150, ext. 2302

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAMS OF STUDY**Digital Animation, Compositing, and Music**

This program is directed at the digital design and implementation of 3D animations, graphic compositing and music.

CERTIFICATE OF PROFICIENCY**Program Requirements**

(5 courses minimum required, 15 units total)

	Units
ARTI 246 Digital 3D Design and Modeling	3
ARTI 247 Digital 3D Design and Animation	3
GC 204 Motion Graphics for Multimedia-A	3

GC 213	Motion Graphics Production and Compositing	3
MUS 180	Computer Music I	3
MUS 184	Electronic Ensemble	3

TOTAL UNITS 15

Digital Animation, Compositing, and Music Certificate of Proficiency is also listed in Graphic Communications and in Music.

Graphic Design

Prepares students in basic skills necessary to prepare a portfolio for application to graphic Design, environmental Design, and packaging Design programs at 4 year schools. In addition, develops creative Design ability and conceptual skills in the printed media, motion graphics, and web Design.

A.A. DEGREE MAJOR

Program Requirements	Units
ART 104 Design and Composition	3
ART 166 History of Art II	3
ART 200 Color/Light and Theory	3
ARTD 100 Graphic Design I	3
ARTD 150 Digital Concepts and Techniques in Art	3
ARTD 200 Graphic Design II- Lettering and Layout	3
ARTD 210 Typography Design	3
ARTD 220 Motion Design	3
ARTD 250 New Media Studio	3
ARTI 100 Introduction to Illustration	3
ARTI 246 Digital 3D Design and Modeling	3
ARTI 247 Digital 3D Design and Animation	3
BUS 150 Advertising	3
PHOT 100 Elementary Photography	3.5
Final Art Portfolio Review	0

Electives (Select 6-7 units)

ART 120 Life Drawing and Composition I	3
ART 296 Special Projects	1,2,3
ARTI 220 Illustration II Digital Techniques	3
R GC/GC 140 Digital Imaging/Photoshop I	3
R GC/GC 152 Desktop Publishing/Illustrator	3
RTV 275 Avid Editing for Television and Film	3
BMGT 105 Small Business Management	3
MUS 180 Computer Music I	3
MUS 181 or Computer Music II	
MUS 184 Electronic Ensemble	3
CE 100 Cooperative Education	1,2,3,4

TOTAL UNITS 48.5-49.5

Graphic Design A.A. Degree Major is also listed in Art - Design.

Illustration

Provides students with specific skills necessary to prepare a portfolio for application to Illustration programs at 4-year schools. In addition develops creative conceptual and Illustrative skills for use in advertising and story Illustration.

A.A. DEGREE MAJOR

Program Requirements	Units
ART 104 Design and Composition	3
ART 120 Life Drawing and Composition I	3
ART 125 Head Drawing	3
ART 166 History of Art II	3
ART 200 Color/Light and Theory	3
ART 220 or Oil Painting I	
ART 225 Acrylic Painting I	3
ARTD 150 Digital Concepts and Techniques in Art	3

ARTI 100 Introduction to Illustration	3
ARTI 200 Rendering	3
ARTI 210 Illustration I	3
ARTI 220 Illustration II, Digital Techniques	3
ARTI 230 Illustration III, Experimental Techniques	3
ARTI 246 Digital 3D Design and Modeling	3
ARTI 247 Digital 3D Design and Animation	3
Final Art Portfolio Review	0

Electives (Select 3 units)

ART 121 Life Drawing and Composition II	3
ART 197B Topics in Art - Painting	.5-3
ART 197F Topics in Art - Drawing	.5-3
ART 235 Watercolor Painting I	3
ART 296 Special Projects	1,2,3
ARTD 100 Graphic Design I	3
ARTD 220 Motion Design	3
ARTD 250 New Media Studio	3
BUS 150 Advertising	3
BMGT 105 Small Business Management	3
PHOT 100 Elementary Photography	3.5
CE 100 Cooperative Education	1,2,3,4

TOTAL UNITS 45

Illustration A.A. Degree Major is also listed in Art – Illustration.

Interactive Media Design

Prepares students with specific skills necessary for employment in the field of multimedia design and production. Students may choose an emphasis in either 3D modeling and animation, which emphasizes production skills and authoring systems, or multimedia design, which emphasizes content development and visual design of multimedia productions. Both areas of emphasis collaborate on an actual multimedia production.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Emphasis in 3D Modeling and Animation

Program Requirements	Units
ARTI 100 Introduction to Illustration	3
ARTI 246 Digital 3D Design and Modeling	3
ARTI 247 Digital 3D Design and Animation	3
DT 180 3D Studio Max-Intro to 3D Modeling/Animation	3
DT 182 3D Studio Max-Adv 3D Modeling/Animation	3
GC/R GC 140 Digital Imaging/Photoshop I	3
GC 204 Motion Graphics for Multimedia-A	3

Electives (Select two courses)

ART 241 Computer Graphics	3
ART 248 Character Animation	1.5
ARTD 150 Digital Concepts/Techniques in Art	3
ARTD 220 Motion Design	3
DT/R DT 128 SolidWorks Intro 3D Design and Presentation	3
DT 184 Real Time 3D Technical/Game Animation	2
GC 142 Digital Imaging/Photoshop III	3
GC 201 Intermediate Multimedia	3
ENTT/RTV 120 Basic Television Production	3
RTV 124 Staging and Lighting for Television	3

TOTAL UNITS 24.5 – 27

Emphasis in Multimedia Design

Program Requirements	Units
ARTD 100 Graphic Design I	3

ARTD 220	Motion Design	3
ARTI 247	Digital 3D Design and Animation	3
GC 142	Digital Imaging/Photoshop III	3
GC/R GC 200	Introduction to Multimedia	3
GC 201	Intermediate Multimedia	3
GC 204	Motion Graphics/Multimedia-A	3

Electives (Select two courses)

ART 197G	Topics in Art – Computer Art	3
ARTD 150	Digital Concepts and Techniques in Art	3
ARTI 246	Digital 3D Design/Modeling	3
DT 180	3D Studio Max-Intro to 3D Modeling/Animation	3
DT 182	3D Studio Max-Adv 3D Modeling/Animation	3
GC 100	Graphic Communications	3
GC/R GC 140	Digital Imaging/Photoshop I	3
GC/R GC 152	Desktop Publishing with Illustrator	3
GC 197E	Multimedia Project	3
GC/R GC 202	Web Page Layout I	3
GC 206	Web Multimedia	3
MUS 180	Computer Music I	3
RTV 170	Introduction to Video Editing	3

TOTAL UNITS 27

Interactive Media Design A.A. Degree or Certificate of Achievement is also listed in Drafting Technology and in Graphic Communications.

Pictorial Arts

Programs are designed to enable the student to acquire skills in producing marketable fine art for gallery exhibition and commissions, enter into the commercial area, and serve as a preparation for transfer to a four-year college or university. Transfer students should consult the four-year college or university catalog for specific requirements or see a Palomar College counselor.

Pictorial arts majors may select an emphasis in painting or printmaking within the program requirements.

Emphasis in Painting

A.A. DEGREE MAJOR

Program Requirements

ART 101	Methods and Materials	3
ART 102	Drawing and Composition I	3
ART 103	Drawing and Composition II	3
ART 104	Design and Composition	3
ART 105	3-Dimensional Form and Design	3
ART 120	Life Drawing and Composition I	3
ART 121	Life Drawing and Composition II	3
ART 165	History of Art I	3
ART 166	History of Art II	3
ART 200	Color/Light and Theory	3
	Final Art Portfolio Review	0

Plus 6 units selected from the following:

ART 220	Oil Painting I	3
ART 221	Oil Painting II	3
ART 225	Acrylic Painting I	3
ART 226	Acrylic Painting II	3

Electives (Select 6 units)

ART 130	Printmaking I	3
ART 131	Printmaking II	3
ART 197F	Topics in Art – Drawing	.5-3
ARTI 200	Rendering	3
ARTI 210	Illustration I, Traditional Techniques	3
ARTI 220	Illustration II, Digital Techniques	3
ART 220, 221, 225, 226	(if not taken in emphasis area)	3

ART 230	Airbrush Painting I	3
ART 231	Airbrush Painting II	3
ART 235	Watercolor Painting I	3
ART 236	Watercolor Painting II	3
PHOT 110	Basic 35mm Color Photo	3

TOTAL UNITS 42

Emphasis in Printmaking

A.A. DEGREE MAJOR

Program Requirements

ART 101	Methods and Materials	3
ART 102	Drawing and Composition I	3
ART 103	Drawing and Composition II	3
ART 104	Design and Composition	3
ART 105	3-Dimensional Form and Design	3
ART 120	Life Drawing and Composition I	3
ART 130	Printmaking I	3
ART 131	Printmaking II	3
ART 165	History of Art I	3
ART 166	History of Art II	3
ART 200	Color/Light and Theory	3
	Final Art Portfolio Review	0

Electives (Select 6 units)

ART 197F	Topics in Art – Drawing	.5-3
ART 220	Oil Painting I	3
ART 221	Oil Painting II	3
ART 225	Acrylic Painting I	3
ART 226	Acrylic Painting II	3
ART 230	Airbrush Painting I	3
ART 231	Airbrush Painting II	3
ART 235	Watercolor Painting I	3
ART 236	Watercolor Painting II	3
ARTI 210	Illustration I, Traditional Techniques	3
ARTI 220	Illustration II, Digital Techniques	3
PHOT 110	Basic 35mm Color Photo	3

TOTAL UNITS 39

Three-Dimensional Arts

Programs are designed to enable the student to acquire skills in producing marketable fine art for gallery exhibition and commissions, enter into the commercial area, and serve as a preparation for transfer to a four-year college or university. Transfer students should consult the four-year college or university catalog for specific requirements or see a Palomar College counselor.

Three-dimensional arts majors may select an emphasis in ceramics, crafts, glass, jewelry and metalsmithing, or sculpture, within the program requirements.

Emphasis in Ceramics

A.A. DEGREE MAJOR

Program Requirements

ART 101	Methods and Materials	3
ART 102	Drawing and Composition I	3
ART 104	Design and Composition	3
ART 105	3-Dimensional Form and Design	3
ART 135	Ceramics I	3
ART 136	Ceramics II	3
ART 165	History of Art I	3
ART 166	History of Art II	3
ART 250	Ceramics III	3
ART 260	Sculpture I	3

ART 265	Ceramic Sculpture I	3
ART 266	Ceramic Sculpture II	3
	Final Art Portfolio Review	0
Electives (Select 6 units)		
ART 137	Pottery Production	3
ART 140	Foundry Techniques in Sculpture I	3
ART 147	Design in Enamels	3
ART 160	Glassblowing-Offhand I	3
ART 261	Sculpture II	3
PHOT 100	Elementary Photography	3.5
PHOT 110	Basic 35mm Color Photo	3
TOTAL UNITS		42

Emphasis in Crafts

A.A. DEGREE MAJOR

Program Requirements	Units	
ART 101 Methods and Materials	3	
ART 102 Drawing and Composition I	3	
ART 104 Design and Composition	3	
ART 105 3-Dimensional Form and Design	3	
ART 135 Ceramics I	3	
ART 145 Design in Mixed Media	3	
ART 146 Design in Wood	3	
ART 147 Design in Enamels	3	
ART 150 Jewelry and Metalsmithing Design I	3	
ART 165 History of Art I	3	
ART 166 History of Art II	3	
ART 260 Sculpture I	3	
	Final Art Portfolio Review	0
Electives (Select 6 units)		
ART 136 Ceramics II	3	
ART 140 Foundry Techniques in Sculpture I	3	
ART 151 Jewelry and Metalsmithing Design II	3	
ART 155 Stained Glass I	3	
ART 261 Sculpture II	3	
ART 270 Jewelry and Metalsmithing Design III	3	
ART 275 Stained Glass II	3	
PHOT 100 Elementary Photography	3.5	
PHOT 110 Basic 35mm Color Photo	3	
TOTAL UNITS	42	

Emphasis in Glass

A.A. DEGREE MAJOR

Program Requirements	Units	
ART 101 Methods and Materials	3	
ART 102 Drawing and Composition I	3	
ART 104 Design and Composition	3	
ART 105 3-Dimensional Form and Design	3	
ART 135 Ceramics I	3	
ART 145 Design in Mixed Media	3	
ART 155 Stained Glass I	3	
ART 160 Glassblowing-Offhand I	3	
ART 165 History of Art I	3	
ART 166 History of Art II	3	
ART 260 Sculpture I	3	
ART 280 Glassblowing-Offhand II	3	
	Final Art Portfolio Review	0
Electives (Select 4-6 units)		
ART 140 Foundry Techniques in Sculpture I	3	
ART 146 Design in Wood	3	

ART 147	Design in Enamels	3
ART 150	Jewelry and Metalsmithing Design I	3
ART 275	Stained Glass II	3
ART 276	Cold Glass Design	1
ART 277	Glass Casting	1
PHOT 110	Basic 35mm Color Photo	3
TOTAL UNITS		40 - 42

Emphasis in Jewelry and Metalsmithing

A.A. DEGREE MAJOR

Program Requirements	Units	
ART 101 Methods and Materials	3	
ART 102 Drawing and Composition I	3	
ART 104 Design and Composition	3	
ART 105 3-Dimensional Form and Design	3	
ART 165 History of Art I	3	
ART 166 History of Art II	3	
ART 145 Design in Mixed Media	3	
ART 147 Design in Enamels	3	
ART 150 Jewelry and Metalsmithing Design I	3	
ART 151 Jewelry and Metalsmithing Design II	3	
ART 205 Indirect Metal Forming	3	
ART 270 Jewelry and Metalsmithing Design III	3	
	Final Art Portfolio Review	0
Electives (Select 6 units)		
ART 135 Ceramics I	3	
ART 140 Foundry Techniques in Sculpture I	3	
ART 146 Design in Wood	3	
ART 260 Sculpture I	3	
ART 265 Ceramic Sculpture I	3	
PHOT 110 Basic 35mm Color Photo	3	
TOTAL UNITS	42	

Emphasis in Sculpture

A.A. DEGREE MAJOR

Program Requirements	Units	
ART 101 Methods and Materials	3	
ART 102 Drawing and Composition I	3	
ART 104 Design and Composition	3	
ART 105 3-Dimensional Form and Design	3	
ART 135 Ceramics I	3	
ART 140 Foundry Techniques in Sculpture I	3	
ART 165 History of Art I	3	
ART 166 History of Art II	3	
ART 260 Sculpture I	3	
ART 261 Sculpture II	3	
ART 265 Ceramic Sculpture I	3	
ART 266 Ceramic Sculpture II	3	
	Final Art Portfolio Review	0
Electives (Select 6 units)		
ART 136 Ceramics II	3	
ART 145 Design in Mixed Media	3	
ART 150 Jewelry and Metalsmithing Design I	3	
ART 160 Glassblowing-Offhand I	3	
ART 205 Indirect Metal Forming	3	
ART 255 Foundry Techniques/Sculpture II	3	
PHOT 110 Basic 35mm Color Photo	3	
TOTAL UNITS	42	

COURSE OFFERINGS

An activity may be taken four times for credit. Activity is defined to include all ability levels. (e.g., A student may take a total of only four Ceramics courses for credit.) Ceramics and Jewelry and Metalsmithing classes are defined as activity courses.

ART 100 Introduction to Art (3)

3 hours lecture

Transfer acceptability: CSU; UC

Promotes an understanding and appreciation of art through slide-lectures, discussion, and museum visits. For non-art majors.

ART 101 Methods and Materials (3)

6 hours lecture/laboratory

Note: May be taken 2 times

Transfer acceptability: CSU

Introduction to the aesthetic and technical potential of a variety of materials and methods basic to various art disciplines. Concentration on the skills needed to use these materials in a two- and three-dimensional art.

ART 102 Drawing and Composition I (3)

6 hours lecture/laboratory

Note: May be taken 2 times

Transfer acceptability: CSU; UC; CAN ART 8

A basic studio course in the media and technique of drawing. An introduction to pictorial structure, visual elements, use of perspective, and rendering and sketching techniques. This course is designed to develop skills for both commercial and fine arts.

ART 103 Drawing and Composition II (3)

6 hours lecture/laboratory

Prerequisite: ART 102

Note: May be taken 2 times

Transfer acceptability: CSU; UC

The development of subject and theme concepts with varied approaches to composition and the use of media. Introduction to abstract composition and mixed media techniques as a preliminary to painting.

ART 104 Design and Composition (3)

6 hours lecture/laboratory

Note: May be taken 2 times

Transfer acceptability: CSU; UC; CAN ART 14

Basic instruction in flat design. The study of line, color, value, shape, texture, form, and the principles of composition. Experience in a variety of media. Essential to students of fine and commercial art, photography, graphic arts, architectural, and interior design.

ART 105 Three-Dimensional Form and Design (3)

6 hours lecture/laboratory

Note: May be taken 2 times

Transfer acceptability: CSU; UC; CAN ART 16

Basic instruction in sculptural forms and structures. A variety of media is explored.

ART 120 Life Drawing and Composition I (3)

6 hours lecture/laboratory

Prerequisite: A minimum grade of "B" in at least one semester of a college-level drawing course

Note: May be taken 2 times

Transfer acceptability: CSU; UC; CAN ART 24

A basic course in the fundamentals of drawing the human figure. The use of the figure as an element of both naturalistic and expressive rendering.

ART 121 Life Drawing and Composition II (3)

6 hours lecture/laboratory

Prerequisite: ART 120

Note: May be taken 2 times

Transfer acceptability: CSU; UC—Credit Limitations

An exploration of the human figure as the basic subject of creative and experimental composition.

ART 123 Arts Across the Curriculum (3)

3 hours lecture

Note: Cross listed as: DNCE/MUS/TA 123

Transfer acceptability: CSU

This course is an introduction to the artistic creative process through a comparative study of dance, music, theatre, and visual arts, within a social and cultural context. The principles of artistic perception, creative expression, cultural and historical context, and aesthetic valuing will be discussed.

ART 125 Head Drawing (3)

6 hours lecture/laboratory

Prerequisite: ART 102 or ARTI 100

Note: May be taken 2 times

Transfer acceptability: CSU; UC

Introduction to human head drawing. Special emphasis on techniques designed to illustrate musculoskeletal relationships that distinguish differences in age, sex, and personality.

ART 130 Printmaking I (3)

6 hours lecture/laboratory

Prerequisite: ART 102

Note: May be taken 2 times

Transfer acceptability: CSU; UC; CAN ART 20

Introduction to the techniques of etching, aquatint, drypoint, photo engraving, and wood and linoleum cuts. Problems in multicolor intaglio and multicolor relief printing. Design and composition in relation to the media will be emphasized.

ART 131 Printmaking II (3)

6 hours lecture/laboratory

Prerequisite: ART 130

Note: May be taken 2 times

Transfer acceptability: CSU; UC

Continued practice in the creation of fine prints. Mixed media and the photoin-taglio process are explored.

ART 132 Lithography and Experimental Printmaking (1)

2 hours lecture/laboratory

Prerequisite: ART 102

Note: May be taken 2 times

Introduction to the techniques of plate lithography and experimental lithographic processes.

ART 133 Etching (1)

2 hours lecture/laboratory

Prerequisite: ART 102

Note: May be taken 2 times

Introduction to the techniques of etching, aquatint and drypoint.

ART 135 Ceramics I (3)

6 hours lecture/laboratory

Note: May be taken 2 times; maximum of 4 completions in any combination of ART 135, ART 136, ART 250

Transfer acceptability: CSU; UC; CAN ART 6

An introduction to basic forming techniques in clay and various surface treatments.

ART 136 Ceramics II (3)

6 hours lecture/laboratory

Prerequisite: ART 135

Note: May be taken 2 times; maximum of 4 completions in any combination of ART 135, ART 136, ART 250

Transfer acceptability: CSU; UC

Advanced studies in handbuilding and wheel throwing techniques. Continuing study of various surface techniques. Techniques of glaze and facility maintenance.

- ART 137 Pottery Production (3)**
6 hours lecture/laboratory
Prerequisite: ART 135
Note: May be taken 2 times
Transfer acceptability: CSU
Wheel throwing production, kiln use and construction, mixing and maintaining glazes, studio maintenance, decorative techniques, and marketing skills and techniques.
- ART 138 Ceramic Surface Decoration (1)**
2 hours lecture/laboratory
Recommended preparation: ART 135, 136, and 250
A study of ceramic surface treatments and decorative techniques.
- ART 139 Raku Techniques (1)**
2 hours lecture/laboratory
Recommended preparation: ART 135, 136, and 250
Note: May be taken 2 times
Exploration of the raku ceramic process and related earthenware decorative techniques.
- ART 140 Foundry Techniques in Sculpture I (3)**
6 hours lecture/laboratory
Prerequisite: ART 105
Note: May be taken 2 times
Transfer acceptability: CSU
Theory and practice in casting skills using foundry techniques.
- ART 145 Design in Mixed Media (3)**
6 hours lecture/laboratory
Note: May be taken 2 times
Transfer acceptability: CSU; UC
Design and production of useful "one-of-a-kind" or "limited edition" objects of art. Attention to the visual as well as structural character of chosen materials. Media may include wood, metal, fibers, plastics, and bone and leather alone or in combination.
- ART 146 Design in Wood (3)**
6 hours lecture/laboratory
Note: May be taken 2 times
Transfer acceptability: CSU; UC
Explores in depth the sculptural and functional qualities of wood. Original designs may include useful forms such as furniture, containers, and architectural ornaments as well as fantasy forms. Benefits students of three-dimensional art and wood technology.
- ART 147 Design in Enamels (3)**
6 hours lecture/laboratory
Recommended preparation: ART 104
Note: May be taken 2 times
Transfer acceptability: CSU
Exploration of the creative and aesthetic possibilities of enameling. Principles and techniques in two- and three- dimensional designs.
- ART 150 Jewelry and Metalsmithing Design I (3)**
6 hours lecture/laboratory
Note: Maximum of 4 completions in any combination of ART 150, ART 151, ART 270
Transfer acceptability: CSU
Projects in two- and three-dimensional jewelrymaking and metalsmithing. Study of the relationship of design to materials and of contemporary metal working techniques.
- ART 151 Jewelry and Metalsmithing Design II (3)**
6 hours lecture/laboratory
Prerequisite: ART 150
Note: May be taken 2 times; maximum of 4 completions in any combination of ART 150, ART 151, ART 270
Transfer acceptability: CSU
- Exploration of manipulation of metal and surface decoration including stone setting.
- ART 155 Stained Glass I (3)**
6 hours lecture/laboratory
Prerequisite: ART 104
Note: May be taken 2 times
Transfer acceptability: CSU
Introduction to the materials and processes involved in the creation of flat glass objects. Emphasis on design potential and creative possibilities of the medium.
- ART 160 Glassblowing-Offhand I (3)**
6 hours lecture/laboratory
Prerequisite: ART 104 or 105
Note: May be taken 2 times
Transfer acceptability: CSU
The study of the properties and structure of glass and materials, equipment, and techniques used to work it in offhand method.
- ART 165 History of Art I: Survey of Western Art (3)**
3 hours lecture
Transfer acceptability: CSU; UC; CAN ART 2; ART 165+166=CAN ART SEQ A
The art forms and styles of Western man from the Paleolithic period through Medieval Gothic. Emphasis on the contribution of religion, social and political structures, heritage, and inter-cultural contacts as they influence changes in form and style.
- ART 166 History of Art II: Survey of Western Art (3)**
3 hours lecture
Transfer acceptability: CSU; UC; CAN ART 4; ART 165+166=CAN ART SEQ A
The art forms and styles of Western man from the Renaissance to the present. Emphasis on the style of individual artists and national styles as well as the contribution of religious, social, and political influences
- ART 167 History of Modern Art I: 19th Century Europe and America (3)**
3 hours lecture
Transfer acceptability: CSU; UC
European and American painting, sculpture, and architecture from 1700 to 1900. Emphasis on the styles and contributions of individual artists as well as the influence of social, political, and cultural developments.
- ART 168 History of Modern Art II: 20th Century Europe and America (3)**
3 hours lecture
Transfer acceptability: CSU; UC
Twentieth Century European and American painting, sculpture, and architecture. Emphasis on the styles and contributions of individual artists as well as the aesthetic, political, and psycho-sociological motivations behind the art of the 20th century.
- ART 182 Introduction to Arts Management (3)**
9 hours laboratory
Note: Cross listed as AMS 182, DNCE 182, MUS 182, and TA 182 **Transfer acceptability:** CSU
An introduction to the principles and practices of arts management through an interdisciplinary study of management topics in the visual and performing arts.
- ART 183 Internship in Arts Management (3)**
9 hours laboratory
Prerequisite: AMS/ART/DANCE/MUS/TA 182
Note: Cross listed as AMS 183, DNCE 183, MUS 183, and TA 183 **Transfer acceptability:** CSU
Practical experience in arts management in the visual and performing arts.

- ART 197A Topics in Art – Printmaking (5-3)**
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times for a maximum of 9 units
Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus.
Short and extended term lecture workshops or laboratory courses in various specialized aspects of printmaking.
- ART 197B Topics in Art – Painting (5-3)**
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times for a maximum of 9 units
Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus.
Short and extended term lecture-workshops or laboratory courses in various specialized aspects of painting.
- ART 197C Topics in Art – Glass (5-3)**
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times for a maximum of 9 units
Transfer acceptability: CSU
Short and extended term lecture workshops or laboratory courses in various specialized aspects of glass.
- ART 197D Topics in Art – Ceramics (5-3)**
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times for a maximum of 9 units
Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus.
Short and extended term lecture workshops or laboratory courses in various specialized aspects of ceramics.
- ART 197E Topics in Art – Sculpture (5-3)**
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to class schedule.
Note: May be taken 4 times for a maximum of 9 units
Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus.
Short and extended term lecture workshops or laboratory courses in various specialized aspects of sculpture.
- ART 197F Topics in Art – Drawing (5-3)**
1 to 6 hours lecture/laboratory
Note: May be taken 4 times for a maximum of 9 units
Transfer acceptability: CSU
Short and extended term lecture-workshops or laboratory courses in various aspects of drawing techniques.
- ART 197G Topics in Art – Computer Art (5-3)**
1 to 6 hours lecture/laboratory
Note: May be taken 4 times for a maximum of 9 units
Transfer acceptability: CSU
Short and extended term lecture-workshops or laboratory courses in which a teacher utilizes and teaches special computer hardware/ software relationships and processes to produce art.
- ART 197H Topics in Art – General (5-3)**
1 to 6 hours lecture/laboratory
Note: May be taken 4 times for a maximum of 9 units
Transfer acceptability: CSU
Short and extended term lecture-workshops or laboratory courses in various aspects of art. Course title will designate subject covered.
- ART 200 Color/Light and Theory (3)**
6 hours lecture/laboratory
Prerequisite: ART 102 and 104
Note: May be taken 2 times
Transfer acceptability: CSU; UC
Investigations into the phenomenon of color and its use in art. Problems involving color and design in various media, including acrylics and collage. Exploration of the role of color in Western art from late 19th Century to the present.
- ART 205 Indirect Metal Forming (3)**
6 hours lecture/laboratory
Prerequisite: ART 150 or 260
Note: May be taken 2 times
Transfer acceptability: CSU
Exploration of indirect metal forming in jewelry and small sculpture. Projects in lost wax centrifugal and gravity casting, electroforming, and metal spraying.
- ART 213 Illustration/Life Drawing (1)**
2 hours lecture/laboratory
Note: May be taken 3 times
Transfer acceptability: CSU
The study of techniques used in drawing and painting from both nude and costumed models.
- ART 214 Head Painting (1)**
2 hours lecture/laboratory
Note: May be taken 3 times
Transfer acceptability: CSU
Introduction to painting techniques as they apply to the human head. Critical analysis and application of color theory and mixing principles. Analysis of human facial planes, proportion and bone structure in the application of either oil or acrylic paint.
- ART 220 Oil Painting I (3)**
6 hours lecture/laboratory
Prerequisite: Completion of, or concurrent enrollment in, ART 103 and 200
Note: May be taken 2 times
Transfer acceptability: CSU; UC; CAN ART 10
Fundamental methods and concepts of studio painting using oil color as the primary medium. Concentration on gaining technical skills in pictorial composition, subject interpretation, brush handling, and the use of color. Exploration of historical and contemporary styles, attitudes, and techniques.
- ART 221 Oil Painting II (3)**
6 hours lecture/laboratory
Prerequisite: ART 220
Note: May be taken 2 times
Transfer acceptability: CSU; UC
Advanced projects in the concepts and techniques of oil painting with concentration on individual creative progress and development.
- ART 225 Acrylic Painting I (3)**
6 hours lecture/laboratory
Prerequisite: Completion of, or concurrent enrollment in, ART 103 and 200
Note: May be taken 2 times
Transfer acceptability: CSU; UC
Concepts of studio painting utilizing acrylic based colors as the primary medium. Exploration of different styles and techniques with emphasis on contemporary modes of expression. Concentration on gaining skills in composition, brush handling, and the use of color.
- ART 226 Acrylic Painting II (3)**
6 hours lecture/laboratory
Prerequisite: ART 225
Note: May be taken 2 times
Transfer acceptability: CSU; UC
Advanced projects in the concepts and techniques of acrylic painting with emphasis on individual creative progress and development.

- ART 230 Airbrush Painting I (3)**
6 hours lecture/laboratory
Prerequisite: Completion of, or concurrent enrollment in, ART 103 and 200
Note: May be taken 2 times
Transfer acceptability: CSU
 Emphasis on developing skills in airbrush painting and masking techniques for use in fine arts, commercial art, and photo retouching. The theory, use, and maintenance of airbrushes and associated equipment.
- ART 231 Airbrush Painting II (3)**
6 hours lecture/laboratory
Prerequisite: ART 230
Note: May be taken 2 times
Transfer acceptability: CSU
 Creative approaches to airbrush painting. A continued study of airbrush techniques used in fine arts, commercial art, and photo retouching.
- ART 235 Watercolor Painting I (3)**
6 hours lecture/laboratory
Note: May be taken 2 times
Transfer acceptability: CSU; UC
 Fundamental approaches to the use of watercolors and other waterbase paints in creative painting. Concentration on both literal and expressive modes utilizing a variety of subjects.
- ART 236 Watercolor Painting II (3)**
6 hours lecture/laboratory
Prerequisite: ART 235
Note: May be taken 2 times
Transfer acceptability: CSU; UC
 Advanced work in watercolor media.
- ART 241 Computer Graphics (3)**
6 hours lecture/laboratory
Recommended Preparation: ARTD 150
Note: May be taken 2 times
Transfer acceptability: CSU
 Two dimensional graphics applications of the computer using Adobe Photoshop software. Explore relationship between computer media and traditional art media. Digital image processing and storage, digital painting methods and layout generation. Technical issues pertaining to generation of digital art.
- ART 244 Illustration II Digital Techniques (3)**
6 hours lecture/laboratory
Prerequisite: ARTD 150
Recommended preparation: ART 241
Note: May be taken 2 times
Transfer acceptability: CSU
 An introduction to concepts and techniques used in the field of digital illustration. Critical thinking and visual problem solving using digital tools as well as the translation of traditional theory and principles will be stressed. Emphasis will be placed on the integration of several computer software programs and traditional media as a means of communicating and applying ideas into the various commercial art marketplaces.
- ART 248 Character Animation (1.5)**
3 hours lecture/laboratory
Note: May be taken 3 times
Transfer acceptability: CSU
 Fundamentals of character animation and design. Hands on experience creating hand drawn animations. Drawings are scanned and assembled on the computer. Final output is transferred onto videotape.
- ART 250 Ceramics III (3)**
6 hours lecture/laboratory
Prerequisite: ART 136
Note: May be taken 2 times; maximum of 4 completions in any combination of ART 135, ART 136, ART 250
Transfer acceptability: CSU; UC
 Creative and experimental handbuilding, advanced throwing, firing techniques, glaze evaluation, and special research.
- ART 255 Foundry Techniques in Sculpture II (3)**
6 hours lecture/laboratory
Prerequisite: ART 140
Note: May be taken 2 times
Transfer acceptability: CSU
 Advanced theory and practices in casting skills using foundry techniques.
- ART 260 Sculpture I (3)**
6 hours lecture/laboratory
Prerequisite: Completion of, or concurrent enrollment in, ART 102 and 105
Note: May be taken 2 times
Transfer acceptability: CSU; UC; CAN ART 12
 Design and fabrication of expressive three-dimensional forms. Exploration of both historical and contemporary sculptural materials with emphasis on 20th Century models of expression.
- ART 261 Sculpture II (3)**
6 hours lecture/laboratory 3
Prerequisite: ART 260
Note: May be taken 2 times
Transfer acceptability: CSU; UC
 Advanced projects in the concept and creation of original sculpture.
- ART 265 Ceramic Sculpture I (3)**
6 hours lecture/laboratory
Prerequisite: ART 102 or 104 or 105, and ART 135
Note: May be taken 2 times
Transfer acceptability: CSU; UC
 Creative projects and experimentation using clay as the primary material for non-utilitarian expressive forms.
- ART 266 Ceramic Sculpture II (3)**
6 hours lecture/laboratory
Prerequisite: ART 265
Note: May be taken 2 times
Transfer acceptability: CSU; UC
 Advanced problems in creative and experimental uses of clay for non-utilitarian expressive forms.
- ART 270 Jewelry and Metalsmithing Design III (3)**
6 hours lecture/laboratory
Prerequisite: ART 151
Note: May be taken 2 times; maximum of 4 completions in any combination of ART 150, ART 151, ART 270
Transfer acceptability: CSU
 Continued exploration of the manipulation of metal. Advanced projects in jewelry and metalsmithing.
- ART 275 Stained Glass II (3)**
6 hours lecture/laboratory
Prerequisite: ART 155
Note: May be taken 2 times
Transfer acceptability: CSU
 Creative expression in flat glass. Emphasis on architectural and fine arts application of the medium. Painting, enameling, and etching techniques will be explored in depth.
- ART 276 Cold Glass Design (1)**
2 hours lecture/laboratory
Note: May be taken 3 times
Transfer acceptability: CSU
 Applications of the materials and processes involved in the production of flat glass materials. Emphasis is on the design of stained glass and problem solving during fabrication of designs.

ART 277 Glass Casting (1)
 2 hours lecture/laboratory
Note: May be taken 3 times
Transfer acceptability: CSU
 The study of the properties of molten glass as applied to glass casting. The acquisition of knowledge through problem solving using open face glass casting techniques.

ART 280 Glassblowing-Offhand II (3)
 6 hours lecture/laboratory
Prerequisite: ART 160
Note: May be taken 2 times
Transfer acceptability: CSU
 Advanced problems in the creation of fine blown glass.

ART 295 Directed Study in Art (1,2,3)
 3, 6, or 9 hours laboratory
Prerequisite: 18 units of college-level art including ART 102, 104 or 105, 165, and 166, and instructor's approval of proposed project or research
Note: May be taken 4 times for a maximum of 9 units
Transfer acceptability: CSU; UC - Credit determined by UC upon review of course syllabus.
 Independent study for advanced students dealing with projects or research in areas not covered by regular classes. Students will work under the guidance of an instructor.

ART 296 Special Projects (1,2,3)
 2, 4, or 6 hours lecture/laboratory
Prerequisite: A minimum grade of "B" in 6 units of college-level course work in a specialized area of art, and instructor's approval of the proposed project
Note: May be taken 4 times for a maximum of 9 units
Transfer acceptability: CSU; UC- Credit determined by UC upon review of course syllabus.
 A course for the student who has demonstrated a proficiency in art and wishes to work beyond existing classes or desires to pursue a project which does not fit into the context of existing classes. Students will work directly with an instructor.

Art - Design (ARTD)

Contact the Art Department for further information, (760) 744-1150, ext. 2302

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAM OF STUDY

Graphic Design

Prepares students in basic skills necessary to prepare a portfolio for application to graphic Design, environmental Design, and packaging Design programs at 4 year schools. In addition, develops creative Design ability and conceptual skills in the printed media, motion graphics, and web Design.

A.A. DEGREE MAJOR

Program Requirements	Units
ART 104 Design and Composition	3
ART 166 History of Art II	3
ART 200 Color/Light and Theory	3
ARTD 100 Graphic Design I	3
ARTD 150 Digital Concepts and Techniques in Art	3
ARTD 200 Graphic Design II- Lettering and Layout	3
ARTD 210 Typography Design	3
ARTD 220 Motion Design	3
ARTD 250 New Media Studio	3

ARTI 100 Introduction to Illustration	3
ARTI 246 Digital 3D Design and Modeling	3
ARTI 247 Digital 3D Design and Animation	3
BUS 150 Advertising	3
PHOT 100 Elementary Photography	3.5
Final Art Portfolio Review	0

Electives (Select 6-7 units)

ART 120 Life Drawing and Composition I	3
ART 296 Special Projects	1,2,3
ARTI 220 Illustration II Digital Techniques	3
R GC/GC 140 Digital Imaging/Photoshop I	3
R GC/GC 152 Desktop Publishing/Illustrator	3
RTV 275 Avid Editing for Television and Film	3
BMGT 105 Small Business Management	3
MUS 180 Computer Music I	3
MUS 181 or Computer Music II	
MUS 184 Electronic Ensemble	3
CE 100 Cooperative Education	1,2,3,4

TOTAL UNITS 48.5-49.5

Graphic Design A.A. Degree Major is also listed in Art.

COURSE OFFERINGS

ARTD 100 Graphic Design I (3)
 6 hours lecture/laboratory
Note: May be taken 2 times
Transfer acceptability: CSU
 Design principles as they apply to graphic communication. Abstract and pictorial Design for the printed media. Film and architectural signage. Lettering is applied as an abstract Design element.

ARTD 150 Digital Concepts and Techniques in Art (3)
 6 hours lecture/laboratory
Prerequisite: ARTD 100
Note: May be taken 2 times
Transfer acceptability: CSU; UC
 An overview of vector based and pixel based computer applications, and how they are used in a creative environment. Understanding of the underlying logic of computer software will be taught with an emphasis on the role of the computer in all forms of modern art-making. Students will learn how to use the computer as a tool effectively while developing their own method of creating digital artwork. Cross-platform issues will be addressed, as well as file preparation for various output media.

ARTD 200 Graphic Design II – Lettering and Layout (3)
 6 hours lecture/laboratory
Prerequisite: ARTD 100
 Recommended preparation: ARTD 150
Note: May be taken 2 times
Transfer acceptability: CSU
 The study of the historical roots and nomenclature of lettering forms and the development of grid systems to aid in the development of successful layout Designs. Design and assembly utilizing both hand skills and computer software will be taught.

ARTD 210 Typography Design (3)
 6 hours lecture/laboratory
Recommended preparation: ARTD 150
Note: May be taken 2 times
Transfer acceptability: CSU
 Introduction to the historical roots and contemporary technology of typography. Provides a critical analysis of technical processes and elements through assignments that define its symbolic and communicative aspects.

ARTD 220 Motion Design (3)
 6 hours lecture/laboratory
Recommended preparation: ART 241

Note: May be taken 3 times

Transfer acceptability: CSU

An introduction to the concepts and techniques of animation and multimedia for personal computers using After Effects. Emphasis will be placed on the role of the artist and in the development process and as a key link in determining the success of the final project.

ARTD 250 New Media Studio (3)

6 hours lecture/laboratory

Prerequisite: Enrollment based on portfolio review with list of criteria

Note: May be taken 3 times

Transfer acceptability: CSU

An advanced class using digital tools that focuses on collaborative creative projects. Joint concept development, communication, critical thinking and creative teamwork will be stressed. Emphasis will be placed on the integration of graphic design, illustration. 2-D and 3-D animation and fine art components into professional quality multimedia projects. Students from the Art Department will have the opportunity to collaborate with students from music and computer science.

Art - Illustration (ARTI)

Contact the Art Department for further information, (760) 744-1150, ext. 2302

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAMS OF STUDY

Illustration

Provides students with specific skills necessary to prepare a portfolio for application to Illustration programs at 4-year schools. In addition develops creative conceptual and Illustrative skills for use in advertising and story illustration.

A.A. DEGREE MAJOR

Program Requirements		Units
ART 104	Design and Composition	3
ART 120	Life Drawing and Composition I	3
ART 125	Head Drawing	3
ART 166	History of Art II	3
ART 200	Color/Light and Theory	3
ART 220 or	Oil Painting I	
ART 225	Acrylic Painting I	3
ARTD 150	Digital Concepts and Techniques in Art	3
ARTI 100	Introduction to Illustration	3
ARTI 200	Rendering	3
ARTI 210	Illustration I	3
ARTI 220	Illustration II, Digital Techniques	3
ARTI 230	Illustration III, Experimental Techniques	3
ARTI 246	Digital 3D Design and Modeling	3
ARTI 247	Digital 3D Design and Animation	3
	Final Art Portfolio Review	0
Electives (Select 3 units)		
ART 121	Life Drawing and Composition II	3
ART 197B	Topics in Art - Painting	.5-3
ART 197F	Topics in Art - Drawing	.5-3
ART 235	Watercolor Painting I	3
ART 296	Special Projects	1,2,3
ARTD 100	Graphic Design I	3
ARTD 220	Motion Design	3
ARTD 250	New Media Studio	3
BUS 150	Advertising	3

BMGT 105	Small Business Management	3
PHOT 100	Elementary Photography	3.5
CE 100	Cooperative Education	1,2,3,4

TOTAL UNITS 45

Illustration A.A. Degree Major is also listed in Art.

COURSE OFFERINGS

ARTI 100 Introduction to Illustration (3)

6 hours lecture/laboratory

Transfer acceptability: CSU

A course on proportion and structure, quick sketching, gesture, and contour drawing. Included is the study of perspective and drawing of mechanical and natural forms by the use of line and value. Emphasis is placed on the evolutionary development of visual ideas.

ARTI 200 Rendering (3)

6 hours lecture/laboratory

Recommended preparation: ART 103, ARTI 100

Note: May be taken 2 times

Transfer acceptability: CSU

Application of various media and techniques for illustrating known products and services or the illustration of design ideas for students in design and architecture. Emphasis is on the development of proficiency and the encouragement of comparison of student work with current professional work.

ARTI 210 Illustration I - Traditional Techniques (3)

6 hours lecture/laboratory

Prerequisite: ARTI 100

Transfer acceptability: CSU

Course work that reflects the types of assignments an illustrator may encounter in the industry, using a variety of traditional media and techniques. Contemporary principles of concept development and problem solving will be explored, using stylization, design, composition and color as methods of communication. Accurate analysis, historical reference, oral and graphic presentation of ideas, sketches and finished art will be stressed.

ARTI 220 Illustration II - Digital Techniques (3)

6 hours lecture/laboratory

Prerequisite: ARTI 200 and ARTI 210

Note: May be taken 2 times

Transfer acceptability: CSU

A course for advanced illustration students that focuses on creating non-traditional professional level commercial artwork. Media experimentation, and combination of traditional methods with digital applications is used to create finished pieces that are conceptually and visually interesting and strong. Students are encouraged to develop and strengthen personal and distinctive approaches to Illustration. Portfolio preparation for admission to high quality 4-year art and Design programs, or for entry into the work force will be examined and applied. Students will also gain insight into self-promotion and marketing strategies. Contracts, self-employment issues and billing procedures will be explained.

ARTI 230 Illustration III - Experimental Techniques (3)

6 hours lecture/laboratory

Prerequisite: ARTI 220

Corequisite: ARTI 210

Note: May be taken 3 times

Transfer acceptability: CSU

Coursework will reflect advanced illustration concepts, conceptually and technically. Students will combine experimental traditional and digital techniques to create projects that reflect a professional level of finish and format. Projects will focus on conceptual content and process, and represent a range of possible industry application, such as entertainment design, editorial illustration and illustrations for an interactive environment.

ARTI 246 Digital 3D Design and Modeling (3)
 6 hours lecture/laboratory
 Recommended preparation: ARTD 150
Note: May be taken 3 times
Transfer acceptability: CSU
 Fundamentals of computerized 3-D modeling and Design. Hands on experience with modeling, lighting, developing texture maps and rendering

ARTI 247 Digital 3D Design and Animation (3)
 6 hours lecture/laboratory
Recommended preparation: ARTD 220
Note: May be taken 3 times
Transfer acceptability: CSU
 Concepts and techniques of 3-dimensional animation using Maya software. The course will provide an understanding of the production, animation and postproduction process.

Astronomy (ASTR)

Contact the Earth Sciences Department for further information, (760) 744-1150, ext. 2512. For transfer information, consult a Palomar College counselor.

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

Planetarium

Palomar College offers several types of planetarium programs for the community. School programs are presented on Tuesday and Thursday mornings for area elementary and secondary schools. The planetarium also offers two evening shows a month, open to the public. For further information, contact the planetarium at (760) 744 1150, ext. 2833 or the Earth Sciences Department.

PROGRAM OF STUDY

Astronomy

Provides the student with sufficient background to begin upper division course work. Transfer students should consult the four year college or university catalog for specific requirements or see a Palomar College counselor. Students pursuing a major in Astronomy at San Diego State University must complete a minor in Mathematics.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
ASTR 100 Principles of Astronomy	3
ASTR 105L Introduction to Astronomy Laboratory	1
ASTR/GEOL 120 Planets, Moons and Comets	3
MATH 140 Calculus/Analytic Geometry, First Course	5
MATH 141 Calculus/Analytic Geometry, Second Course	4
MATH 205 Calculus/Analytic Geometry, Third Course	4
PHYS 230 Principles of Physics	5
PHYS 231 Principles of Physics	5
PHYS 232 Principles of Physics	4
TOTAL UNITS	34

Recommended Electives: ASTR 210, 295

COURSE OFFERINGS

ASTR 100 Principles of Astronomy (3)
 3 hours lecture
Transfer acceptability: CSU; UC
 The fundamental nature of the night sky as understood by pre 20th century scientists. Properties of the solar system, stars, black holes, galaxies, and extragalactic objects. Interstellar communication and extraterrestrial life.

ASTR 105L Introduction to Astronomy Laboratory (1)
 3 hours laboratory
Prerequisite: Completion of, or concurrent enrollment in, ASTR 100, 120
Transfer acceptability: CSU; UC
 Exploration of the techniques used in astronomy to determine the physical properties of stars and galaxies. The physical nature of light and the optical principles of a telescope are also explored. Measurements of planetary and stellar phenomena are used to investigate the astronomical methods of determining the size, composition and age of the universe.

ASTR 120 Planets, Moons, and Comets (3)
 3 hours lecture
Note: Cross listed as GEOL 120
Transfer acceptability: CSU; UC
 The astronomy and geology of the solar system, observations, dynamics, relativistic ideas, including theories of formation and evolution. Comparative survey of the atmospheres, surface features and interiors of planets and satellites. Minor objects, such as comets and asteroids, will be included.

ASTR 197 The Universe: Contemporary Topics in the Space Sciences (1-3)
 Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times
Transfer acceptability: CSU; UC - Credit determined by UC upon review of course syllabus.
 Selected topics in astronomy and space sciences, emphasizing current research and discoveries. Refer to the Class Schedule for specific topics covered.

ASTR 210 Life in the Universe (3)
 3 hours lecture
Prerequisite: ASTR 100 or 120
Transfer acceptability: CSU
 A scientific exploration of life in the universe using the findings of astronomy, biology, and chemistry. Topics include the development of life and its environments on Earth, the search for life in the cosmos, interstellar communications and travel, and the effects of contact.

ASTR 295 Directed Study in Astronomy (1,2,3)
 Arrange 3, 6, or 9 hours laboratory with department chairperson
Prerequisite: ASTR 100 or 120
Note: May be taken 4 times for a maximum of 6 units
Transfer acceptability: CSU; UC - Credit determined by UC upon review of course syllabus.
 Individual study in field, library, or laboratory for interested students.

Athletics and Competitive Sports (ACS)

Contact the Athletics Program for further information, (760) 744-1150, ext. 2460

Palomar College offers intercollegiate sports for men and women. They include softball, basketball, golf, tennis, soccer, volleyball, swimming and diving, water polo, football, wrestling, cross country, and baseball. Teams will compete in one of four conferences: Mission Conference, Orange Empire Conference, South Coast Conference, and Pacific Coast Conference. Member colleges are located in the Los Angeles, Orange County, Riverside, and San Diego areas. In order to participate in intercollegiate athletics a student must fulfill the following requirements:

- I. Obtain a physical clearance by the team physician.
2. Enroll in 12 units. Students are encouraged to register for a minimum of 9 units in courses other than Physical Education activity classes or Athletics and Competitive Sports classes.
3. Successfully complete 24 units prior to a second season of participation. A minimum of 18 units must be completed in courses other than Physical Education activity classes or Athletics and Competitive Sports classes.
4. Maintain a 2.0 or higher grade point average in all course work.
5. Participate in the Palomar College matriculation program which includes English, math and reading skills assessment.
6. Participate in the Palomar College Athletic Academic Advisement Program which includes:
 - a. Establishment of an Individual Education Plan prior to second semester of enrollment.
 - b. Academic assessment of course progress following the 4th, 8th, and 12th week of each semester.
 - c. Fulfilling tutorial or study hall requirements as assigned by the instructor advisor.

INTERCOLLEGIATE ATHLETIC COURSE OFFERINGS

Courses numbered under 100 are not intended for transfer credit.

ACS 50 Introduction to Collegiate Athletics (1)

1 hour lecture

Program for matriculation, study skills, eligibility rules, substance abuse, responsibilities of being a student athlete, training, and nutrition.

The following courses provide students with the opportunity to develop advanced skills and the strategies in specific sports which will be applied to competitive situations. A minimum of 175 hours of student participation is required.

ACS 101	Intercollegiate Softball (Women)	(2)
ACS 110	Intercollegiate Basketball (Men/Women)	(2)
ACS 115	Intercollegiate Golf (Men/Women)	(2)
ACS 120	Intercollegiate Tennis (Men/Women)	(2)
ACS 125	Intercollegiate Soccer (Men/Women)	(2)
ACS 130	Intercollegiate Volleyball (Men/Women)	(2)
ACS 135	Intercollegiate Swim/Diving (Men/Women)	(2)
ACS 140	Intercollegiate Water Polo (Men/Women)	(2)
ACS 145	Intercollegiate Football (Men)	(2)
ACS 150	Intercollegiate Wrestling (Men)	(2)
ACS 155	Intercollegiate Baseball (Men)	(2)
ACS 160	Intercollegiate Cross Country (Men/Women)	(2)

Note: Each course may be taken 3 times

Transfer acceptability: CSU; UC - max credit combined with PE activity courses, 4 units

Automotive Technology (AT)

Contact the Trade and Industry Department for further information, (760) 744-1150, ext. 2545

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAMS OF STUDY

Auto Body Work

In order to earn a certificate, students must achieve a minimum grade of 'C' in each of the certificate program courses.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
R AT 50	Auto Body Repair I	4
R AT 51	Auto Body Repair II	4
R AT 55	Auto Refinishing I	4
R AT 56	Auto Refinishing II	4
Elective Courses (Select 6 Units)		
AT 100	Auto Maintenance and Minor Repair	3
AT 105	Automotive Electricity	2
CE 100	Cooperative Education	1,2,3,4
IT 100	Technical Mathematics	3
WELD 100	Welding I	2
CE 100	Cooperative Education	1,2,3,4
TOTAL UNITS		22

Auto Body Work A.A. Degree or Certificate of Achievement is also listed under R.O.P. Automotive Technology.

Auto Chassis and Drive Lines

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
IT 100	Technical Mathematics	3
R AT 50 or WELD 100	Auto Body Repair I Welding I	3,4
AT 105	Automotive Electricity	2
AT 120	Automatic Transmissions and Drive Lines	3
AT 130	Automotive Brakes	3
AT 135	Front End Alignment and Wheel Service	3
AT 140	Front Drive Transmissions	4
AT 160	Associated Studies in Automotives	3
AT 220	Advanced Automatic Transmissions	3
TOTAL UNITS		27-28

Electronic Tune Up and Computer Control Systems

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
IT 100	Technical Mathematics	3
AT 105	Automotive Electricity	2
AT 110	Automotive Tune up and Engine Analysis	3
AT 115	Automotive Carburetion and Fuel Systems	3
AT 160	Associated Studies in Automotives	3
AT 210	Specialized Automotive Electronics	3
AT 215	Automotive Emission Control	3
Electives (Select 6-7 units)		
AT 100	Auto Maintenance and Minor Repair	3
AT 140	Front Drive Transmissions	4
AT 145	Auto Emissions/Diagnosis	3
DMT 70/ R DMT 70 or DMT 55/ R DMT 55	Med-Duty Diesel Engine Tune up Heavy-Duty Diesel Tune up/Analysis	3
WELD 100	Welding I	3
CE 100	Cooperative Education	2,3
TOTAL UNITS		26-27

Mechanics General

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
IT 100	Technical Mathematics	3
AT 160	Associated Studies in Automotives	3
AT 105	Automotive Electricity	2
AT 110	Automotive Tune up and Engine Analysis	3
AT 120	Automatic Transmissions and Drive Lines	3
AT 125	Automotive Machining	3
AT 130	Automotive Brakes	3
AT 225	Automotive Engine Rebuilding	3
AT 140	Front Drive Transmissions	4
R AT 50 or WELD 100	Auto Body Repair I Welding I	3,4
Electives (Select 2 courses)		
AT 100	Auto Maintenance and Minor Repair	3
AT 115	Automotive Carburetion and Fuel Systems	3
CE 100	Cooperative Education	2,3,4
TOTAL UNITS		34-38

COURSE OFFERINGS

AT 100 Auto Maintenance and Minor Repair (3)

2 hours lecture-3 hours laboratory

Transfer acceptability: CSU

Designed for the student with little or no background in the automotive field. The course covers many maintenance and minor repair items as well as basic theory of operation. The areas covered include batteries, cooling systems, drive belts, lubrication, brakes, tires, and consumer education.

AT 105 Automotive Electricity (2)

4 hours lecture/laboratory

Auto electrical systems including A.C. generators, batteries, solid state starters, wiring diagrams, and/or electrical troubleshooting that includes solid state and low voltage low amperage systems.

AT 110 Automotive Tune Up and Engine Analysis (3)

2 hours lecture-3 hours laboratory

The use of tune up testing and diagnostic equipment; the study of conventional and electronic ignition systems; compression, cylinder balance, and dynamometer testing.

AT 115 Automotive Carburetion and Fuel Systems (3)

2 hours lecture 3 hours laboratory

The principles, technical knowledge, and work experience in the field of carburetion. Specific topics include single, dual, and four barrel carburetors; fuel injection; fuel supply systems; and combustion evaluation instruments.

AT 120 Automatic Transmissions and Drive Lines (3)

2 hours lecture-3 hours laboratory

The hydraulic and mechanical function and repair of automatic transmissions. The disassembly, inspection, reassembly, and testing of three speed conventional transmissions, clutches, universal joints, and differentials.

AT 125 Automotive Machining (3)

6 hours lecture/laboratory

The various testing and machining operations involved in an automotive machine shop. Areas covered include cylinder head service and repair, pin fitting, cylinder boring, milling, align boring, and various other automotive machining and measuring techniques.

AT 130 Automotive Brakes (3)

2 hours lecture-4 hours laboratory

The hydraulic and mechanical function of automotive brake systems. Brake troubleshooting, complete system repair, and overhaul of power, drum, and disc brakes. Preparation for the State Brake License.

AT 135 Front End Alignment and Wheel Service (3)

2 hours lecture-4 hours laboratory

The repair and adjustment of the undercarriage of the automobile. Included are such areas as steering, geometry, turn radius, ball joints, toe track, camber, caster, suspension, bearing service, wheel balance, and tire wear identification. Preparation for the State Lamp License.

AT 145 Auto Emissions, Diagnosis, Drivability, and Repair (3)

6 hours lecture/laboratory

Auto emissions diagnosis and repair using an individual baseline approach and loaded-mode testing equipment to solve emission failures. Includes use of scan tools, digital storage oscilloscopes, and inflight analyzers to logically repair the vehicles.

AT 150 Chassis Restoration and Assembly (3)

6 hours lecture/laboratory

Prerequisite: A minimum grade of 'C' in AT 100

Course covers basic disassembly and documentation of antique automotive chassis and components. Lab activities will focus on correct detailing and reassembly of vintage automobile chassis and related undercarriage elements.

AT 155 Body Restoration and Assembly (3)

6 hours lecture/laboratory

Prerequisite: A minimum grade of 'C' in R AT 50

Note: May be taken 2 times

Course covers basic disassembly and documentation of antique automotive bodies and components. Lab activities will focus on correct detailing, restoration and reassembly of vintage automobiles and related elements, using historically authentic materials and techniques.

AT 160 Associated Studies in Automotives (3)

3 hours lecture

Note: May be taken 4 times

Applied science and technology as related to the automotive field. Areas covered include metrics, Ohms Law and electron theory, metal alloys and their properties and uses, thermal expansion, gas laws, limits and fits, and friction and torque.

AT 196 Special Problems in Automotives (1,2,3)

3, 6, or 9 hours laboratory

Recommended preparation: Completion of a minimum of 12 units in Automotive Technology (may include 6 concurrent Automotive Technology units)

Note: May be taken four times

Special study in an area of interest related to automotives; generally research in nature. The content to be determined by the need of the student under signed contract with the instructor.

AT 197 Topics in Automotive (.5-3)

Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.

Note: May be taken 4 times

Topics in automotive technology. See Class Schedule for the specific topic offered. Course title will designate subject covered.

AT 210 Specialized Automotive Electronics (3)

2 hours lecture-3 hours laboratory

Recommended preparation: AT 105 or 110

Electronic principles as they pertain to the automobile. Identification, diagnosis, repair, and verification of malfunctioning electronic components is the major objective of the course. Computer controls fundamentals and diagnosis of GM systems, 1981-1990.

AT 215 Automotive Emission Control (3)

3 hours lecture-2 hours laboratory

Recommended preparation: AT 110 and 115

Auto emission controls as prescribed by Federal Law and California Air Resources Board. Analysis and testing of emission controls will be presented. Study of current laws for state exam preparation.

AT 225 Automotive Engine Rebuilding (3)

2 hours lecture-4 hours laboratory

The complete rebuilding of at least one automobile engine using the machine tools and techniques of industry.

Biology (BIOL)

Contact the Life Sciences Department for further information, (760) 744-1150, ext. 2275

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAMS OF STUDY**Biology – General****A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT**

Program Requirements	Units
BIOL 200 Foundations of Biology I	5
BIOL 201 Foundations of Biology II	5
ZOO 100 or General Zoology	4
ZOO 101/101L Animal Kingdom	4
Group One (Select 3-4 units)	
BOT 101/101L General Botany	4
BOT 110 Botany of Spring Wildflowers	4
BOT 115 Plants and People	3
Group Two (Select 4-5 units)	
BIOL 114/114L Ecosystem Biology	4.5-5
BIOL 118/118L General Ecology	4
BIOL 130 or Marine Biology	4
BIOL 131/131L Marine Biology	4
ZOO 115 or Natural History of Animal Life	4
ZOO 116/116L Natural History of Animal Life	4
Group Three (Select 9-11 units)	
Biology Any course not used above (100 and up)	
Botany Any course not used above	
Microbiology Any course	
Zoology Any course not used above	

MINIMUM TOTAL UNITS 32

Recommended Courses: BIOL 215; CHEM 100, 110, 110L, 115, 115L; MATH 110, 115, 135; CSIS 105

Biology-Preprofessional

Provides intensive lower division preparation for pursuing advanced studies in biological science, premedical, pre dental, or preveterinarian programs leading towards a Bachelor's degree and beyond.

Students are advised to consult catalogs of the institution to which they plan to apply to determine special or additional requirements, or see a Palomar College Counselor.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
BIOL 200 Foundations of Biology I	5
BIOL 201 Foundations of Biology II	5
CHEM 110/110L General Chemistry and Laboratory	5
CHEM 115/115L General Chemistry and Laboratory	5
CHEM 220 Organic Chemistry	5
CHEM 221 Organic Chemistry	5
MATH 140 Calculus/Analytic Geometry, First Course	5
MATH 141 Calculus/Analytic Geometry, Second Course	4

TOTAL UNITS 39

Recommended Electives: BIOL 215; MATH 205; PHYS 230, 231, 232; ZOO 203

COURSE OFFERINGS

Courses numbered under 50 are non-degree courses.
Courses numbered under 100 are not intended for transfer credit.

*UC credit limitations –

- BIOL 100, 101/101L, 102 and 200 combined: maximum credit, 4 units
- No credit for BIOL 100 and 101/101L if taken after 200 or 201
- No credit for BIOL 102 if taken after 100, 101/101L or 200 or 201
- BIOL 105, 106/106L and ZOO 145/145L combined: maximum credit, 4 units
- BIOL 114/114L, 118/118L combined: maximum credit, 4 units
- BIOL 130 and 131/131L combined: maximum credit 4 units
- BIOL 185, FCS 165, FCS 185, and HE 165 combined: maximum credit, one course
- BIOL 215, MATH 120, SOC 205, and PSYC 205 combined: maximum credit, one course

BIOL 45A Field Studies in Natural History (.5-3)

1 to 6 hours lecture/laboratory

Note: May be taken four times; designed for families. Recommended for children between the ages of 8-14. Parent or guardian must accompany children. See class schedule or contact the Life Sciences Department for locality to be visited, and more information. Fee charged.

Field studies of plant and animal species encountered in various habitats, including systematics and major structural and functional characteristics of the taxonomic groups to which these species belong, and emphasizing each species particular adaptations that favor its survival in its natural habitat.

BIOL 47 Biology Topics (.5-4)

Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.

Note: May be taken 4 times

Topics in Biology. See class schedule for specific topic covered. Course title will designate subject covered.

BIOL 100 General Biology (4)

3 hours lecture-3 hours laboratory

Note: Not open to students with prior credit in BIOL 101 or 101L, BIOL 102, BIOL 105, BIOL 106/106L.

Transfer acceptability: CSU; UC*; CAN BIOL 2

Basic principles of general biology as they relate to the cellular, organismic, and population levels of organization. Includes cell ultrastructure and function, energy transfer, reproduction, genetics, evolution, diversity of organisms, and ecology. Not recommended for students interested in Biology, Zoology, Botany, Premed, or related majors (see Biology 200 and Biology 201).

BIOL 101 General Biology (Lecture) (3)

3 hours lecture

Note: Not open to students with prior credit in BIOL 100

Transfer acceptability: CSU; UC*; BIOL 101+101L= CAN BIOL 2

Basic principles of general biology as they relate to the cellular, organismic, and population levels of organization. Includes cell ultrastructure and function, energy transfer, reproduction, genetics, evolution, diversity of organisms, and ecology.

BIOL 101L General Biology (Laboratory) (1)

3 hours laboratory

Prerequisite: Completion of, or concurrent enrollment in, BIOL 101 or BIOL 114

Note: Not open to students with prior credit in BIOL 100, BIOL 102, BIOL 105, BIOL 106/106L.

Transfer acceptability: CSU; UC*; BIOL 101+101L= CAN BIOL 2

Laboratory exercises in cell structure and function, energy transfer, reproduction, genetics, and ecology. This is a general education course intended for non-science majors.

BIOL 102 Molecules and Cells (4)

3 hours lecture-3 hours laboratory

Recommended preparation: MATH 50

Transfer acceptability: CSU; UC*

The basic principles of biological systems including the chemistry of life, cell structure and function, energy transfer, reproduction, and genetics.

BIOL 105 Biology with a Human Emphasis (4)

3 hours lecture-3 hours laboratory

Note: Not open to students with prior credit in BIOL 100, BIOL 101/101L, BIOL 102, BIOL 106/106L.

Transfer acceptability: CSU; UC*

Principles of cellular, organismal and population biology as exemplified by, and relating to, the human organism. Laboratory includes study of cells, tissues, and mammalian organ systems.

BIOL 106 Biology with a Human Emphasis (Lecture) (3)

3 hours lecture

Note: Not open to students with prior credit in BIOL 100, BIOL 101/101L, BIOL 102, BIOL 105

Transfer acceptability: CSU; UC

Principles of cellular, organismal and population biology as exemplified by, and relating to, the human organism.

BIOL 106L Biology with a Human Emphasis (Laboratory) (1)

3 hours laboratory

Prerequisite: Completion of, or concurrent enrollment in, BIOL 106

Note: Not open to students with prior credit in BIOL 100, BIOL 101/101L, BIOL 102, BIOL 105

Transfer acceptability: CSU; UC

Laboratory experiences designed to demonstrate cellular structure and function as they relate to the human organism. An examination of major body systems is included.

BIOL 110 Human Genetics (3)

3 hours lecture

Transfer acceptability: CSU; UC

Principles of human inheritance including gene transmission, genetic diseases, pedigree analysis, molecular genetics, immunogenetics, and population genetics; relationships to other fields of study will be emphasized.

BIOL 114 Ecosystem Biology (Lecture) (3)

3 hours lecture

Note: See also BIOL 114L

Transfer acceptability: CSU; UC*

Basic principles of general biology as they relate to exemplary ecosystems.

BIOL 114L Ecosystem Biology (Laboratory) (1.5-2)

4½ or 6 hours laboratory

Prerequisite: Completion of, or concurrent enrollment in, BIOL 101 or 114

Note: A fee is required, and additional costs may be incurred. Contact the Life Sciences Department or see the schedule of classes for specific information about

the laboratory field sites, dates and fees. **Transfer acceptability:** CSU; UC* Laboratory and field experiences to illustrate and observe biology as it relates to exemplary ecosystems. Typical field sites include the Greater Yellowstone ecosystem, Central America, or the Sea of Cortez.

BIOL 118 General Ecology (Lecture) (3)

3 hours lecture

Transfer acceptability: CSU; UC*

Basic concepts of evolution, population ecology, community ecology, and ecosystem ecology.

BIOL 118L General Ecology (Laboratory) (1)

3 hours laboratory

Prerequisite: Completion of, or concurrent enrollment in, BIOL 118

Transfer acceptability: CSU; UC*

Provides hands-on experiences with ecological concepts, methods, and problem-solving techniques by using the plants and animals of local communities in their natural settings. The majority of laboratory sessions will be devoted to off-campus field studies.

BIOL 130 Marine Biology (4)

3 hours lecture-3 hours laboratory

Note: Not open to students with prior credit in BIOL 131 or 131L

Transfer acceptability: CSU; UC*

An introduction to marine biology with an emphasis on the adaptations, classification, and ecology of marine organisms as well as current issues in marine biology. A survey of local marine organisms and habitats. Participation on field trips as scheduled is required.

BIOL 131 Marine Biology (Lecture) (3)

3 hours lecture

Note: Not open to students with prior credit in BIOL 130

Transfer acceptability: CSU; UC*

An introduction to marine biology with an emphasis on the adaptations, classification, and ecology of marine organisms as well as current issues in marine biology.

BIOL 131L Marine Biology (Laboratory) (1)

3 hours laboratory

Prerequisite: Completion of, or concurrent enrollment in, BIOL 131

Note: Not open to students with prior credit in BIOL 130

Transfer acceptability: CSU; UC*

A survey of local marine organisms and local marine habitats. A field trip oriented course; participation on field trips as scheduled is required.

BIOL 135 Marine Mammals: Biology and Ecology (3)

3 hours lecture

Note: Cross listed as ZOO 135

Transfer acceptability: CSU; UC

Basic biology and ecology of marine mammals. Special emphasis on behavior, adaptations, and conservation.

BIOL 160 Biotechnology Preparatory Course (5)

3 hours lecture-6 hours laboratory

Recommended preparation: MATH 50

Transfer acceptability: CSU

This course is intended as a preparation course for students interested in further studies in biotechnology. The course provides the basic knowledge in math, chemistry, biology, and microbiology for additional biotechnology coursework. Topics include the fundamental chemical processes common in prokaryotic and eukaryotic biology, chemistry of biomolecules, cellular and molecular biology, gene expression and genetic engineering. The laboratory experience provides basic skills and techniques essential to advanced biotechnology courses.

BIOL 161 Biotechnology Methods (4)

2 hours lecture-6 hours laboratory

Prerequisite: MATH 50, BIOL 100 and CHEM 100, or MATH 50 and BIOL 102, or MATH 50 and BIOL 160, or MATH 50 and BIOL 200

Transfer acceptability: CSU

Biotechnology Methods includes current basic theory and laboratory skills used in biotechnology industry. Lectures cover concepts such as recombinant DNA technology and basic protein biochemistry. The laboratory illustrates lecture topics through preparing a recombinant plasmid, transformation of the recombinant plasmid into a suitable bacterial host, verification of the process by identification and analysis of the recombinant bacteria, growth of the recombinant bacteria, expression of the protein encoded by the recombinant plasmid and purification and analysis of the expressed protein.

BIOL 185 Science of Human Nutrition (3)
3 hours lecture

Note: Cross listed as FCS 185

Transfer acceptability: CSU; UC

Science of food, nutrients, and other substances therein; processes by which the organism ingests, digests, absorbs, transports, utilizes, and excretes food substances. Emphasis on biological, chemical, and physiological implications to human nutrition.

BIOL 195A Field Studies in Natural History (1,2,3)
2, 4, or 6 hours lecture/laboratory

Note: Fee charged; may be taken 4 times

Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus.

Field studies of plant and animal species encountered in various habitats, including systematics and major structural and functional characteristics of the taxonomic groups to which these species belong, and emphasizing each species' particular adaptations that favor its survival in its natural habitat. See Class Schedule for locality to be visited.

BIOL 195B Field Studies in Ecology (1,2,3)
2, 4, or 6 hours lecture/laboratory

Note: Fee charged; may be taken 4 times

Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus.

Field study of the fauna and biota of selected geographic regions, with emphasis placed upon field identification, observation and interpretation of behavioral and ecological interrelationships of living things to their environment and to one another. See Class Schedule for locality to be visited.

BIOL 195C Field Studies in Marine Biology (1,2,3)
2, 4, or 6 hours lecture/laboratory

Note: Fee charged; may be taken 4 times

Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus.

Field study of the fauna and biota of marine intertidal and subtidal habitats of selected geographic regions, with emphasis placed upon field identification, observation and interpretation of behavioral and ecological interrelationships of living things to their environment and to one another. See Class Schedule for locality to be visited.

BIOL 195D Field Studies in Island Ecology (1,2,3)
2, 4, or 6 hours lecture/laboratory

Note: Fee charged; may be taken 4 times

Transfer acceptability: CSU

Field study of the unique ecology of islands, emphasizing systematics, speciation, observation and interpretation of the interactions of indigenous and exotic biota, and how the biotic communities of the study island(s) have adapted to the special limitations of their confined environments. See Class Schedule for locality to be visited.

BIOL 195E Field Studies in Tropical Biology (1,2,3)
2, 4, or 6 hours lecture/laboratory

Note: Fee charged; may be taken 4 times

Transfer acceptability: CSU

Field study in the fauna and flora of selected tropical regions, with emphasis placed upon field identification, observation and interpretation of behavioral and ecological interrelationships of living things to their environment and to one another. See Class Schedule for locality to be visited.

BIOL 197 Biology Topics (.5-4)

Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule

Note: May be taken 4 times

Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus.

Topics in Biology. See Class Schedule for specific topic offered. Course title will designate subject covered.

BIOL 200 Foundations of Biology I (5)
3 hours lecture-6 hours laboratory

Prerequisite: Completion of, or concurrent enrollment in, CHEM 110

Transfer acceptability: CSU; UC*

Molecular and cellular biology. Transmission, molecular, and population genetics. Aspects of reproduction of prokaryotes and eukaryotes. Principles of evolution and systematics. Recommended for biology majors.

BIOL 201 Foundations of Biology II (5)
3 hours lecture-6 hours laboratory

Prerequisite: Completion of, or concurrent enrollment in, BIOL 200

Transfer acceptability: CSU; UC*

An examination of the diversity of life, as seen in the Eubacteria, Archaea, and Eukarya, emphasizing the integration of structure and function, development, life histories, phylogenetics, animal behavior, and ecology. Recommended for biology majors.

BIOL 215 Introduction to Biostatistics (4)
3 hours lecture-3 hours laboratory

Prerequisite: A minimum grade of 'C' in MATH 110, and a minimum grade of 'C' in BIOL 201

Note: This course does not qualify for mathematics credit

Transfer acceptability: CSU; UC*; max credit for one course: BIOL 215, PSYC 205, or SOC 205 and MATH 120, one course

An introduction to the quantitative analysis of biological data. Founded on the principles of the scientific process, this course provides experience in the design of biological experiments and the appropriate analysis and interpretation of biological data.

BIOL 295 Directed Study in Life Science (1,2,3)
3, 6, or 9 hours laboratory

Prerequisite: Approval of project or research by department chairperson

Note: May be taken 4 times

Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus.

Independent study for students who have demonstrated skills and/or proficiencies in biology subjects and have the initiative to work independently on projects or research outside the context of regularly scheduled classes. Students will work under the personal supervision of an instructor.

Botany (BOT)

Contact the Life Sciences Department for further information, (760) 744-1150, ext. 2275

COURSE OFFERINGS

BOT 100 General Botany (4)
3 hours lecture 3 hours laboratory

Note: Not open to students with prior credit in BOT 101 or 101L. **Transfer acceptability:** CSU; UC – BOT 100 and 101/101L combined: maximum credit, 4 units; CAN BIOL 6

The diversity, structure, and function of major plant groups including cellular metabolism, soil water relationships, classification, genetics, life cycle patterns, growth, and the basic ecological and evolutionary concepts of botany. This is a general education course intended for non-science majors.

BOT 101 General Botany Lecture (3)
 3 hours lecture
Note: Not open to students with prior credit in BOT 100
Transfer acceptability: CSU; UC – BOT 100 and 101/101L combined: maximum credit, 4 units
 The diversity, structure, and function of major plant groups including cellular metabolism, soil water relationships, classification, genetics, life cycle patterns, growth, and the basic ecological and evolutionary concepts of botany.

BOT 101L General Botany Laboratory (1)
 3 hours laboratory
Prerequisite: Completion of, or concurrent enrollment in, BOT 101
Note: Not open to students with prior credit in BOT 100
Transfer acceptability: CSU; UC – BOT 100 and 101/101L combined: maximum credit, 4 units
 A laboratory course in plant biology. Special emphasis on the structure, growth, function, genetics, and life cycles of major plant groups. This is a general education course intended for non-science majors.

BOT 110 Botany of Spring Wildflowers (4)
 3 hours lecture 3 hours laboratory
Transfer acceptability: CSU; UC
 The identification, distribution, and interrelationships of plants in their natural environment; ecological principles; and representative plant communities. Special emphasis will be given to the study of plant families and the use of taxonomic keys.

BOT 115 Plants and People (3)
 3 hours lecture
Transfer acceptability: CSU; UC – No credit if taken after 100 or 101/101L
 The role of plants in the world ecosystem, including past and present cultural and economic uses for food, medicine, and industrial products. Principles of plant structure and function, with selected topics on plant diversity, plant adaptations, and the interrelationships between plants and people will also be discussed.

BOT 195 Field Study of Native Plants (1,2,3)
 2, 4 or 6 hours lecture/laboratory
Note: May be taken 4 times
Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus.
 Extended field study of the flora of selected geographical areas including habitats, adaptations, and identification of native and naturalized species. See Class Schedule for locality to be visited. Fee charged.

BOT 197 Botany Topics (.5-4)
 Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times
Transfer acceptability: CSU; UC – Credit determined by UC upon review of course syllabus. Topics in Botany. See Class Schedule for specific topic offered. Course title will designate subject covered.

Business Education (BUS)
See also Accounting, Business Management, Insurance, International Business, Legal Studies, Office Information Systems, Paralegal Studies, Real Estate
 Contact the Business Education Department for further information, (760) 744-1150, ext. 2488

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAMS OF STUDY

Advertising, Marketing, and Merchandising

This program is designed to provide a general academic background of coursework pertinent to entry-level employment and/or upper division education in the field of product or service distribution.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
ACCT 103 and	Financial Accounting	
ACCT 104 or	Accounting Spreadsheet Lab	
BUS 105	Bookkeeping Fundamentals	3,5
BUS 110	Business Mathematics	3
BUS 115	Business Law	3
BUS 140	Selling for Business	3
BUS 145/		
FASH 125	Retailing/Promotion	3
BUS 150	Advertising	3
BUS 155	Marketing	3
Electives (Select 10-11 units)		
BUS 100	Introduction to Business	3
BUS 125	Business English	3
BUS/FCS 136	Personal Finance	3
BUS 157	E-Commerce	3
BUS 158	Marketing Internship	3
BUS 170	Word for Business Basic	1
BUS 205	Business Writing	3
BMGT 110	Human Resource Management	3
BMGT 105	Small Business Management	3
CSIS 105 or	Computer Concepts/Microcomputer Applications	
CSIS/R CSIS 120	Microcomputer Applications	3
MATH 120	Elementary Statistics	3
OIS 101	Beginning Keyboarding	3
SPCH 100	Oral Communication	3
TOTAL UNITS		31-34

Recommended Elective: BUS 171

Business Administration

Provides a program to prepare the student for transfer. Since requirements vary at each four-year school, transfer students must consult with a counselor, or a Business Education Department advisor, to develop a program for the specific school they wish to attend.

A.A. DEGREE MAJOR

Program Requirements		Units
ACCT 103	Financial Accounting	4
ACCT 104	Accounting Spreadsheet Lab	1
ACCT 108	Managerial Accounting	4
BUS 115 or	Business Law	
BUS 117	Legal Environment of Business	3
BUS 175	Excel Basic	1
BUS 205	Business Writing	3
CSIS 105 or	Computer Concepts/Microcomputer Applications	
CSIS/R CSIS 120	Microcomputer Applications	3
ECON 100 or	Basic Economics	
ECON 101 and	Principles of Economics (Macro)	
ECON 102	Principles of Economics (Micro)	3,6
MATH 120	Elementary Statistics	3
MATH 130	Calculus for the Social Sciences	4
TOTAL UNITS		29 - 32