



Merritt College

2019 - 2020 Catalog Supplement



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ABOUT THIS SUPPLEMENT

The Merritt College Catalog Supplement for 2019 - 2020 is a summary of additions, deactivations, corrections, and changes that have been made in curriculum and policies affecting students since the publication of the 2019 – 2020 Catalog. Changes to curriculum are made on an ongoing basis throughout the academic year and are usually effective for a subsequent term. All individual course additions and changes show the effective term at the end of each entry. All program additions and changes show the effective term after the program title.

ACCURACY STATEMENT

Merritt College endeavors to accurately and fairly present its programs, course descriptions, schedules and policies and to ensure that all information presented here is correct and current as of the date of its release. Merritt College assumes no responsibility for administrative or publication errors. In addition, Merritt College reserves the right to add, amend, modify or withdraw any of its policies, course descriptions, class schedules or other information reflected here from time to time. Please check our website at www.merritt.edu/wp/catalog for our catalog supplement and the most current, available information.

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NEW COURSES		
SUBJECT/ NUMBER	COURSE TITLE/INFORMATION	EFFECTIVE TERM
ATHL 2	<p>BAKSETBALL FOUNDATIONS 3 units, 10 hours laboratory (GR or P/NP) Acceptable for credit: CSU</p> <p>Fundamentals of intercollegiate competition: Theory and practice of basketball fundamentals. 0835.50</p>	SUMMER 2020
ATHL 7	<p>BASKETBALL TEAM PRE-SEASON PREPARATION .5 unit, 2 hours laboratory (GR or P/NP) Acceptable for credit: CSU</p> <p>Intercollegiate basketball team pre-season training for intercollegiate competition: Sport-specific training to develop areas of individual weaknesses for students who intend to participate in intercollegiate competitive basketball. 0835.50</p>	SUMMER 2020
CIS 62	<p>INTRODUCTION TO SYSTEMS ANALYSIS AND DESIGN 3 units, 3 hours lecture (GR or P/NP) Prerequisite: CIS 1 or CIS 5 or CIS 6 or CIS 25 or CIS 36A or CIS 61 Acceptable for credit: CSU</p> <p>Principles of systems analysis and design: Systematic methodology for analyzing business problems or opportunities; OOA&D (Object/Oriented Analysis and Design) and UML, the role technologies can play in addressing business needs, articulation of business requirements for technology solutions, alternative approaches to acquiring the technology capabilities needed to address business requirements, and specification of requirements for the information systems solution. 0707.30</p>	SUMMER 2020

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NEW COURSES		
SUBJECT/ NUMBER	COURSE TITLE/INFORMATION	EFFECTIVE TERM
CIS 110	<p>INFORMATION AND COMMUNICATION TECHNOLOGY ESSENTIALS 4 units, 3 hours lecture, 3 hours laboratory (GR or P/NP) Acceptable for credit: CSU</p> <p>Fundamentals of computer hardware, software, and networking: Security, assembly of information systems through configuration and integration of Information Technology components. 0701.00</p>	SUMMER 2020
ENVMT 55	<p>PRINCIPLES OF CONSERVATION AND LAND MANAGEMENT 3 units, 3 hours lecture (GR or P/NP) Acceptable for credit: CSU</p> <p>Introduction to natural resources conservation and management: Historical and political overview of conservation and natural resource policies in California and the United States. 0115.00</p>	SPRING 2020
ENVMT 56	<p>MANAGEMENT OF PUBLIC PARKS AND NATURAL RESOURCES 3 units, 3 hours lecture (GR or P/NP) Acceptable for credit: CSU</p> <p>Current practices and issues in the management of public lands at the federal, state, and local level. 0115.00</p>	SPRING 2020
ENVMT 57	<p>PARK OPERATIONS PRACTICES AND SKILLS 4 units, 3 hours lecture, 3 hours laboratory (GR or P/NP) Acceptable for credit: CSU</p> <p>Hands-on experience in the practice of managing public parks and open spaces: Management of visitors, resource protection; maintenance of facilities. 0115.00</p>	SPRING 2020

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NEW COURSES		
SUBJECT/ NUMBER	COURSE TITLE/INFORMATION	EFFECTIVE TERM
HLTOC 150	<p>INTRODUCTION TO HEALTH CARE CAREERS 2 units, 2 hours lecture (GR or P/NP) Acceptable for credit: CSU</p> <p>Exploration of career and educational opportunities in the healthcare field: History of the various professions; legal issues; roles, skills and required competencies in the field; professional code of ethics; program requirements and plan of completion; and career planning. 1201.00</p>	FALL 2019

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COURSE REACTIVATONS		
SUBJECT/ NUMBER	COURSE TITLE/INFORMATION	EFFECTIVE TERM
ENGL 264B	<p>Preparation for Composition, Reading, and Research 4 units, 3 hours lecture, 3 hours laboratory (GR or P/NP) Prerequisite: ENGL 264A</p> <p>Skill development in composition, reading, and research: Active reading strategies; writing and prewriting strategies; argumentation techniques; research techniques. 1501.00</p>	SUMMER 2020
ENVMT 14	<p>ENVIRONMENTAL IMPACT REPORTS 2 units, 2 hours lecture (GR or P/NP) Acceptable for credit: CSU</p> <p>Introduction to, analysis, and writing of environmental impact reports, statements, assessments and reviews: Background, purposes, uses, and content of EIRs (Environmental Impact Reports); analyzing and commenting on EIR elements and tests of significance. 0303.00</p>	SPRING 2020

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COURSE MODIFICATIONS			
SUBJECT/ NUMBER	CHANGE FROM:	CHANGE TO:	EFFECTIVE TERM
ADJUS 49	DESCRIPTION: See section in Independent Study. 2105.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Administration of Justice. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 2105.00	SPRING 2020
AFRAM 49	DESCRIPTION: See section in Independent Study. 2203.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in African-American Studies. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 2203.00	SPRING 2020
ANTHR 1L	DESCRIPTION: An adjunct laboratory to Anthropology 1: Work with replicas of bones and visits to museums and zoos to study primate behavior and hominid evolution. REQUISITES: Corequisite: ANTHR 001	DESCRIPTION: Adjunct laboratory to ANTHR 1: Work with replicas of bones and visits to museums and zoos to study primate behavior and hominid evolution. REQUISITES: Prerequisite or Corequisite: ANTHR 001	FALL 2019

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COURSE MODIFICATIONS			
SUBJECT/ NUMBER	CHANGE FROM:	CHANGE TO:	EFFECTIVE TERM
ANTHR 49	DESCRIPTION: See section in Independent Study. 2202.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Anthropology. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 2202.00	FALL 2019
ART 49	DESCRIPTION: See section in Independent Study. 1002.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Art. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 1002.00	SPRING 2020
ASTR 10	REQUISITES: Recommended Prep: MATH 201 or MATH 210D	REQUISITES: Prerequisites: MATH 201 or MATH 210D or MATH 230 or MATH 240 or Appropriate Placement into transfer level Math through multiple measures assessment process.	SPRING 2020

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COURSE MODIFICATIONS			
SUBJECT/ NUMBER	CHANGE FROM:	CHANGE TO:	EFFECTIVE TERM
BIOL 49	DESCRIPTION: See section in Independent Study. 0401.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Biology. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 0401.00	SPRING 2020
BIOSC 49	DESCRIPTION: See section in Independent Study. 0430.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Bioscience. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 0430.00	SPRING 2020
BUS 49	DESCRIPTION: See section in Independent Study. 0501.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Business. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 0501.00	SPRING 2020
CHDEV 56A	REQUISITES: Prerequisites: CHDEV 051	REQUISITES: Prerequisites: None	SPRING 2020
CHDEV 56B	REQUISITES: Prerequisites: CHDEV 051	REQUISITES: Prerequisites: None	SPRING 2020

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COURSE MODIFICATIONS			
SUBJECT/ NUMBER	CHANGE FROM:	CHANGE TO:	EFFECTIVE TERM
CHEM 1A	REQUISITES: Prerequisites: Satisfactory score on the chemistry assessment or CHEM 030A or CHEM 050 and Satisfactory score on the math assessment or MATH 203 or MATH 211A-D	REQUISITES: Prerequisites: CHEM 030A or CHEM 050 or Satisfactory score on the chemistry assessment or Completion of ALEKS chemistry preparation course and MATH 203 or MATH 211D or Satisfactory score on the math assessment Recommended Preparation: ENGL 001A or ESOL 052A	SPRING 2020
CIS 49	DESCRIPTION: See section in Independent Study. 0702.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Computer Information Systems. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 0702.00	SPRING 2020
COMM 49	DESCRIPTION: See section in Independent Study. 1506.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Communication. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 1506.00	SPRING 2020

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COURSE MODIFICATIONS			
SUBJECT/ NUMBER	CHANGE FROM:	CHANGE TO:	EFFECTIVE TERM
COSER 49	DESCRIPTION: See section in Independent Study. 2104.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Community Social Services. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 2104.00	SPRING 2020
COUN 24	TOP CODE: 4930.10 REQUISITES: Recommended Prep: ENGL 201B ESL 052B	TOP CODE: 4930.13 REQUISITES: NONE	SUMMER 2020
COUN 57	REQUISITES: Recommended Prep: ENGL 201B ESL 021B	REQUISITES: NONE	SUMMER 2020

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COURSE MODIFICATIONS			
SUBJECT/ NUMBER	CHANGE FROM:	CHANGE TO:	EFFECTIVE TERM
EDT 2	<p>TITLE: Introduction to Using Online Courseware (Moodle)</p> <p>DESCRIPTION: Introduction to online courseware using Moodle and/or other course management systems: Creating and uploading materials, creating and importing quizzes, setting testing parameters; adding resources, web and text pages; using blogs and wikis, online discussion tools including forums and email, online glossaries, and grading tools; adding multimedia, audio, and podcasts; and basic administrative functions, including setting preferences and access.</p>	<p>TITLE: Introduction to Using Canvas</p> <p>DESCRIPTION: Introduction to the Canvas online course management system: Setting the course and notification preferences, creating and uploading materials, creating and importing quizzes, setting testing parameters, adding online resources including multimedia, creating online discussions, using the internal message system, grading tools and introducing additional Canvas features and teaching strategies.</p>	SPRING 2020
ENGL 49	<p>DESCRIPTION: See section in Independent Study. 1501.00</p>	<p>DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in English. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 1501.00</p>	SPRING 2020
ENVMT 2	<p>TOP code: 0303.00</p>	<p>TOP code: 0115.00</p>	FALL 2019

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COURSE MODIFICATIONS			
SUBJECT/ NUMBER	CHANGE FROM:	CHANGE TO:	EFFECTIVE TERM
ENVMT 2L	<p>TITLE: Principles of Ecology and Sustainable Systems Lab</p> <p>DESCRIPTION: Also offered as Biol 13L. Not open for credit to students who have completed or are currently enrolled in Biol 13L. Field laboratory course which identifies, measures, and tests the sustainable environmental principles discussed in ENVMT 2 or BIOL 13: Qualitative and macro/micro quantitative methods, identifying and sustaining ecosystems, nutrient cycling, geographical and aquatic ecology, population dynamics, water and energy systems, air pollution and hazardous waste, and farming methods and use of pesticides.</p> <p>TOP code: 0303.00</p> <p>CROSS-LISTING: BIOL 013L</p>	<p>TITLE: Introduction to Sustainable Environmental Systems Lab</p> <p>DESCRIPTION: Field laboratory course which identifies, measures, and tests the sustainable environmental principles discussed in ENVMT 2: Qualitative and macro/micro quantitative methods, identifying and sustaining ecosystems, nutrient cycling, geographical and aquatic ecology, population dynamics, water and energy systems, air pollution and hazardous waste, and farming methods and use of pesticides.</p> <p>TOP code: 0115.00</p> <p>CROSS-LISTING: Removed cross-listing to BIOL 013L</p>	SPRING 2020
ENVMT 49	<p>DESCRIPTION: See section in Independent Study. 0303.00</p>	<p>DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Environmental Management and Technology. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 0303.00</p>	SPRING 2020

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COURSE MODIFICATIONS			
SUBJECT/ NUMBER	CHANGE FROM:	CHANGE TO:	EFFECTIVE TERM
ENVST 49	DESCRIPTION: See section in Independent Study. 0302.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Environmental Studies. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 0302.00	SPRING 2020
HIST 49	DESCRIPTION: See section in Independent Study. 2205.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in History. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 2205.00	SPRING 2020
HLTED 49	DESCRIPTION: See section in Independent Study. 0837.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Health Education. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 0837.00	SPRING 2020

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COURSE MODIFICATIONS			
SUBJECT/ NUMBER	CHANGE FROM:	CHANGE TO:	EFFECTIVE TERM
LANHT 49	DESCRIPTION: See section in Independent Study. 0109.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Landscape Horticulture. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 0109.00	SPRING 2020
M/LAT 49	DESCRIPTION: See section in Independent Study. 2203.04	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Mexican and Latin-American Studies. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 2203.04	SPRING 2020
MATH 250	TOP code: 4930.41	TOP code: 1702.00	FALL 2020
MATH 49	DESCRIPTION: See section in Independent Study. 1701.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Mathematics. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 1701.00	SPRING 2020

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COURSE MODIFICATIONS			
SUBJECT/ NUMBER	CHANGE FROM:	CHANGE TO:	EFFECTIVE TERM
MUSIC 49	DESCRIPTION: See section in Independent Study. 1004.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Music. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 1004.00	SPRING 2020
NUTR 70A	REQUISITES: Prerequisite: NUTR 010 NUTR 012 NUTR 030 NUTR 031 NUTR 032 Corequisite: NUTR 071A	REQUISITES: Prerequisite: NUTR 010 and NUTR 012 and NUTR 030 and Corequisite: NUTR 071A	SPRING 2020
NUTR 70B	REQUISITES: Prerequisite: NUTR 070A Corequisite: NUTR 071B	REQUISITES: Prerequisite: NUTR 070A and NUTR 071A and Corequisite: NUTR 071B	SPRING 2020
NUTR 71A	DESCRIPTION: Designed to apply classroom learning to the actual job environment: 150 hours of verified, supervised field experience in healthcare settings is required. UNITS: 1 unit HOURS: Hours to be arranged	DESCRIPTION: Supervised application of dietetic principles: Total of 150 hours in a healthcare facility and a community site to practice public health competencies. UNITS: 2 units HOURS: 6 laboratory	SUMMER 2020

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COURSE MODIFICATIONS			
SUBJECT/ NUMBER	CHANGE FROM:	CHANGE TO:	EFFECTIVE TERM
NUTR 71B	<p>DESCRIPTION: Supervised application of dietetic principles in a healthcare facility to practice clinical competencies and in a community site to practice public health competencies. A total of 150 supervised hours is required.</p> <p>UNITS: 3 units</p> <p>HOURS: 3 lecture</p>	<p>DESCRIPTION: Supervised application of dietetic principles: Total of 150 hours in a healthcare facility and a community site to practice public health competencies.</p> <p>UNITS: 2 units</p> <p>HOURS: 6 laboratory</p>	SUMMER 2020
NUTR 71C	<p>DESCRIPTION: Supervised application of dietetic principles in a healthcare facility to practice advanced clinical and management skills: A total of 150 supervised hours is required.</p> <p>HOURS: 2 lecture</p>	<p>DESCRIPTION: Supervised application of dietetic principles: Total of 150 hours in a healthcare facility and a community site to practice public health competencies.</p> <p>HOURS: 6 laboratory</p>	SUMMER 2020
PARLG 49	<p>DESCRIPTION: See section in Independent Study. 1402.00</p>	<p>DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Paralegal Studies. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 1402.00</p>	SPRING 2020

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COURSE MODIFICATIONS			
SUBJECT/ NUMBER	CHANGE FROM:	CHANGE TO:	EFFECTIVE TERM
PHIL 49	DESCRIPTION: See section in Independent Study. 1509.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Philosophy. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 1509.00	SPRING 2020
PHYS 49	DESCRIPTION: See section in Independent Study. 1902.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Physics. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 1902.00	SPRING 2020
PSYCH 49	DESCRIPTION: See section in Independent Study. 2001.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Psychology. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 2001.00	SPRING 2020

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COURSE MODIFICATIONS			
SUBJECT/ NUMBER	CHANGE FROM:	CHANGE TO:	EFFECTIVE TERM
RADSC 1C	<p>DESCRIPTION: Introduction to the clinical environment (carried out in an affiliated hospital): Emphasis on patient care and positioning; orientation to the hospital and radiology department, radiography processing area, quality assurance, equipment operation, department safety, and radiographic procedures.</p>	<p>DESCRIPTION: Introduction to the clinical environment (carried out in an affiliated hospital): Emphasis on patient care and positioning; orientation to the hospital and medical imaging department, hospital information system, radiology information system, quality assurance, equipment operation, department safety, and radiographic procedures.</p>	SUMMER 2020
RADSC 6	<p>DESCRIPTION: Quality management/fluoroscopy concepts: Equipment monitoring and maintenance programs for radiography, fluoroscopy and film processing; artifact causes and retake/repeat analysis programs; demonstrations and performance of quality assurance procedures in both radiographic and fluoroscopic areas emphasizing high quality patient care; and preparations for taking the California fluoroscopy permit examination.</p>	<p>DESCRIPTION: Quality management/fluoroscopy concepts: Equipment monitoring and maintenance programs for radiography, fluoroscopy and image processing; artifact causes and repeat analysis programs; demonstrations and performance of quality assurance procedures in both radiographic and fluoroscopic areas emphasizing high quality patient care; and preparations for taking the California fluoroscopy permit examination.</p>	SUMMER 2020
SOC 49	<p>DESCRIPTION: See section in Independent Study. 2201.00</p>	<p>DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Sociology. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 2201.00</p>	SPRING 2020

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COURSE MODIFICATIONS			
SUBJECT/ NUMBER	CHANGE FROM:	CHANGE TO:	EFFECTIVE TERM
SPAN 49	DESCRIPTION: See section in Independent Study. 1105.00	DESCRIPTION: In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Spanish. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 1105.00	SPRING 2020

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COURSE DEACTIVATIONS		
SUBJECT/NUMBER	COURSE TITLE	EFFECTIVE TERM
ADJUS 284A	Field Training Officer Course	SPRING 2020
ART 039A-D	Special Projects: Portraiture	SUMMER 2019
BIOL 013L	Principles of Ecology and Sustainable Systems Lab	FALL 2019
BIOL 60A-H	Natural History of the Bay Area	SPRING 2020
BIOL 848NQ	Natural History of Costa Rica, Part III	SPRING 2020
BIOL 848NU	Survey of the Natural History of Costa Rica: Flora, fauna, and ecosystems of Monte Verde, Tirimbina Reserve, La Selva, Selva Verde, Manuel Antonio, Ricon de La Vieja, and InBio Park.	SPRING 2020
BIOL 865A	Natural History of Taiwan-Field Studies	SPRING 2020
COPEP 470B	Occupational Work Experience in Nursing, A.D.	FALL 2019
COSER 348B	COSER348B	SUMMER 2019
COSER 348C	COSER348C	SUMMER 2019
COSER 348D	COSER348D	SUMMER 2019
COSER 348E	COSER348E	SUMMER 2019
COSER 348F	COSER348F	SUMMER 2019
COSER 348G	COSER348G	SUMMER 2019

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SUBJECT/NUMBER	COURSE TITLE	EFFECTIVE TERM
COSE 348H	COSE348H	SUMMER 2019
COSE 348I	COSE348I	SUMMER 2019
COSE 348J	COSE348J	SUMMER 2019
COUN 200C	Orientation to College for Students with Disabilities	FALL 2019
COUN 201	Orientation to College: Student Success and Support Program	FALL 2019
COUN 207	Career Exploration	FALL 2019
COUN 207B	Career Exploration	FALL 2019
COUN 230	Strategies for Personal Development	FALL 2019
ELECT 056	ELECT056	SUMMER 2019
ELECT 057	ELECT057	SUMMER 2019
ENGL 252A	Integrated Reading and Writing	FALL 2019
ENGL 252B	Integrated Reading and Writing	FALL 2019
ENGL 2564B	Preparation for Composition, Reading, and Research	FALL 2019
ENGL 280A	English Fundamentals Workshop	SUMMER 2020

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COURSE DEACTIVATIONS		
SUBJECT/NUMBER	COURSE TITLE	EFFECTIVE TERM
ENGL 280B	English Fundamentals Workshop	SUMMER 2020
LIS 80	Introduction to Library Research	SPRING 2020
LIS 200	Library Skills for College Students	SPRING 2020
MATH 205A	Intermediate Algebra -- Part 1	SUMMER 2020
MATH 205B	Intermediate Algebra -- Part 2	SUMMER 2020
MATH 211D	Intermediate Algebra (Lab)	SUMMER 2020
MATH 270	Math Workshop for Arithmetic	SUMMER 2020
MATH 271	Math Workshop for Pre-Algebra	SUMMER 2020
MATH 272	Math Workshop for Elementary Algebra	SUMMER 2020
MUSIC 7	African American Music	SPRING 2020

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CATALOG COURSE CORRECTIONS			
SUBJECT/ NUMBER	CATALOG PAGE	ERROR	CORRECTION
ENGL 10A	Page 228	Prerequisite: none Acceptable for credit: CSU, UC	Prerequisite: ENGL 1A Acceptable for credit: CSU
COPED 450 through COPED 484B	Pages 212-214	Information missing	All COPED courses are CSU Transferable
PHYS 4A	Page 349	CSU area B1, B3, B4	CSU area B1, B3
PHYS 4C	Page 349	CSU area B1, B3, B4	CSU area B1, B3
RADSC 2A	Page 365	Prerequisites: MATH 201 or MATH 210D Recommended preparation: CIS 1 and ENGL 1A	Prerequisites: CIS 1 and MATH 203

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NEW NONCREDIT PROGRAM

ACADEMIC COMPOSITION SKILLS CERTIFICATE OF COMPETENCY

DESCRIPTION

The Academic Composition Skills, Certificate of Competency ensures necessary skills in fundamentals of English composition and research for students enrolled in composition courses. Students who complete this program have skills which will help them succeed in future courses that require essay writing.

CAREER OPPORTUNITIES

This program is designed to ensure that students have academic skills required to be successful in their academic goals, which ultimately prepares them for college level courses that would lead to career opportunities.

PROGRAM LEARNING OUTCOMES

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

1. Demonstrate fundamental composition skills in order to write well organized, well developed, well edited, and clear essays in transfer-level English and other transfer-level classes.
2. Demonstrate fundamental research skills in order to write well researched and well documented research papers in transfer-level English and other transfer-level classes.

PROGRAM REQUIREMENTS

Subject #	Title	Hours
Major Core Courses		
ENGL 508A	Academic Composition Skills: Prewriting and Organization	17.5 – 262.5
ENGL 508B	Academic Composition Skills: Paragraph Development, Analysis, and Research	17.5 – 262.5
ENGL 508C	Academic Composition Skills: Sentence Structure and Proofreading	17.5 – 262.5
Competency Requirement	Writing tutors, under the supervision of the course instructor, are responsible for evaluating student writing competencies as required for each course, English A, B, and C. For example, students who demonstrate all competencies for English 508A will then be required to demonstrate competencies for English 508B and then for English 508C. Students will have up to six weeks to meet the competences of all three courses by the end of a semester.	
Total Hours		52.50 – 787.50

RECOMMENDED ONE-YEAR COURSE SEQUENCE

Students can use the following pattern to complete an Academic Composition Skills Certificate of Competency. This is only one possible pattern. It maps a sequence of courses to help students complete their certificate, regardless of the semester they begin classes. This map does not replace consulting with a counselor. Students are advised to meet with a counselor at least once each semester to develop their individual Student Education Plan (SEP) and plan for their educational goals.

Subject #	Title	Hours
Major Core Courses		
1st Year- Fall or Spring		
ENGL 508A	Academic Composition Skills: Prewriting and Organization	17.5 – 262.5
ENGL 508B	Academic Composition Skills: Paragraph Development, Analysis, and Research	17.5 – 262.5
ENGL 508C	Academic Composition Skills: Sentence Structure and Proofreading	17.5 – 262.5
Total Hours		52.50 – 787.50

NEW PROGRAM

**ART FOUNDATION
CERTIFICATE OF ACHIEVEMENT**

DESCRIPTION

The Art Foundation Certificate of Achievement program prepares students to enter vocational programs and fields of study that require knowledge of basic drawing, painting, color theory, 2-D composition and design.

A Certificate of Achievement will be awarded upon satisfactory completion of the requirements specified below.

CAREER OPPORTUNITIES

The Art Foundation Certificate of Achievement prepares students to advance in vocational programs, such as Graphic Design, Illustration, Fashion Design, Industrial Design, Interior Design, Media Arts, Video, Architecture, Arts Education, and Childhood Education.

PROGRAM LEARNING OUTCOMES

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

1. Write a visual analysis/critique of their own and other's art on both form and content, and its relation to a historical and global context.
2. Produce artworks reflecting an understanding of basic components of design and composition such as line, shape, value, texture, space, color, scale, proportion, balance, mood, movement, mass and emphasis.
3. Assemble a portfolio of strong works of art that demonstrate skill and understanding of techniques in various media.

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PROGRAM REQUIREMENTS

Subject #	Title	Units
Major Core Courses		
ART 20	Beginning Drawing and Composition	3
ART 22	Intermediate Drawing and Composition	3
ART 46	2-D Visual Design	3
ART 50	Beginning Painting	3
ART 137	Beginning Figure Drawing and Composition	3
Major Elective Courses		
	Select one course for 2-3 units from the following:	
ART 23	Advanced Drawing and Composition	3
ART 26	Continuing Figure Drawing and Composition	2
ART 27	Intermediate Figure Drawing and Composition	3
ART 28	Advanced Figure Drawing and Composition	3
ART 35	Beginning Portraiture	2
ART 40	Color Dynamics: The Interaction of Color	3
ART 51	Continuing Painting	2
ART 52	Intermediate Painting	3
ART 53	Advanced Painting	3
ART 60	Beginning Painting: Watercolor	2
ART 61	Continuing Painting: Watercolor	2
ART 62	Intermediate Painting: Watercolor	3
ART 63	Advanced Painting: Watercolor	3
ART 66	Beginning Pastel Drawing	2
ART 67	Continuing Pastel Drawing	2
ART 166	Beginning Botanical Drawing	2
	Total Units	17-18

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RECOMMENDED TWO-YEAR COURSE SEQUENCE

Students can use the following pattern to complete an Art Foundation Certificate of Achievement. This is only one possible pattern. It maps a sequence of courses to help students complete their degree, regardless of the semester they begin class. This map does not replace consulting with a counselor. Students are advised to meet with a counselor at least once each semester to develop their individual Student Education Plan (SEP) and plan for their educational goals.

Subject #	Title	Units
1st Semester		
ART 20	Beginning Drawing and Composition	3
ART 46	2-D Visual Design	3
or		
ART 50	Beginning Painting	3
		1st Semester Units
		6
2nd Semester		
ART 22	Intermediate Drawing and Composition	3
ART 46	2-D Visual Design	3
or		
ART 50	Beginning Painting	3
		2nd Semester Units
		6
3rd Semester		
Art 137	Beginning Figure Drawing and Composition	3
		3rd Semester Units
		3
4th Semester		
One Restricted Elective		2-3
		4th Semester Units
		2-3
		Total Units
		17-18

NEW NONCREDIT PROGRAM

**BASIC EMPLOYABILITY PREPARATION
 CERTIFICATE OF ACCOMPLISHMENT**

DESCRIPTION

The Basic Employability Preparation Certificate of Accomplishment is designed to prepare students with basic English and Math skills and an awareness of the local employment market. Students will be ready to seek and obtain entry level positions that are consistent with their skills, interests and abilities or pursue further education in a specific career area. The Basic Employability Preparation Certificate of Achievement will be awarded upon satisfactory completion of the following noncredit requirements: LRNRE 561: English for Life and Career Success; LRNRE 562: Math for life and Career Success; and LRNRE 566: Career Awareness, Disability and Success.

CAREER OPPORTUNITIES

Students will be ready to seek and obtain entry level positions that are consistent with their skills, interests and abilities or pursue further education. The certificate will be awarded once the individual has completed LRNRE 561 (English for Life and Career Success), LRNRE 562 (Math for Life and Career Success) and LRNRE 566 (Career Awareness, Disability and Success).

PROGRAM LEARNING OUTCOMES

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

1. Demonstrate the ability to read, write and speak accurately with peers and supervisors.
2. Compute basic mathematical functions by hand and with a calculator
3. Identify a career plan that matches with your skills, interests and abilities by using the internet and other resources to clarify options available.

PROGRAM REQUIREMENTS

Subject #	Title	Hours
Major Core Courses		
LRNRE 561	Basic English for Life and Career Success	52.5
LRNRE 562	Basic Math for Life and Career Success	52.5
LRNRE 566	Career Awareness, Disability and Success	52.5
Total Hours		157.5

NEW PROGRAM

COMPUTER SCIENCE ASSOCIATE IN SCIENCE (AS) DEGREE

DESCRIPTION

Graduates of the Computer Science Associate in Science degree will have the skills required for entry level software development. This degree combines both CTE & Transfer outcomes and integrates entry level skills for software development with curriculum in secure coding, hacking techniques, automation of security operations, and DevOps. This Computer Science degree infuses Computer Science competencies with Cybersecurity competencies and is aligned with curriculum guidance from governing bodies such as the Association of Computing Machinery (ACM) and the National Initiative for Cybersecurity Education (NICE). The curriculum is mapped to the nationally defined Knowledge Units (KU) and articulates into four-year programs in both Computer Science and Cybersecurity. The curriculum includes instruction in the fundamentals of problem solving and analysis, programming, data structures, and architecture. Additional requirements include Calculus, Physics and Discrete Mathematics. This program takes a contextualized approach to the CS major through the choice of language, C++, and the approach to curriculum subjects. It aims to develop skills in the design and implementation of software that operates correctly at extreme scale. It equips the graduate to select strategies and develop programs that solve complex problems within appropriate constraints such as time, connectivity, processing, or storage limitations.

This program also prepares students for transfer to four-year colleges for further study in Computer Science or Cybersecurity, as well as related areas such as Computer Engineering. Students who are interested in transferring after completion of the two-year degree program should consult with the departmental faculty chair, read the "Transfer Information" section of the college catalog, and discuss their plans with their program advisor or counselor. If you wish to substitute one class for another because of specific requirements of the transfer institution you will attend, consult with your articulation counselor. Four-year universities may have additional or different course requirements for completion of lower division courses. The website www.assist.org can provide additional information about applicable courses for transfer.

CAREER OPPORTUNITIES

Career opportunities include entry-level jobs in the fields of software development, cybersecurity (secure software development), DevOps, blockchain services and mobile applications, high performance computing, data science, and artificial intelligence.

PROGRAM LEARNING OUTCOMES

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

1. Select the appropriate design and implementation to solve a problem within given constraints.
2. Analyze computer architecture to formulate estimates of performance.
3. Explain the fundamentals of problem solving and analysis.
4. Analyze software design and/or implementation and make suggestions to improve security.
5. Design and Implement software to automate security operations.

Note: To qualify for the Computer Science Associate in Science degree, students must satisfactorily complete the major requirements specified below and the local AA/ AS general education requirements. See the Associate Degrees and Certificates section of this catalog for more information on the local AA/AS overall requirements and the local AA/AS general education requirements.

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PROGRAM REQUIREMENTS

Subject #	Title	Units
Major Core Courses		
CIS 6	Introduction to Programming	5
or		
CIS 7	Control Structures and Objects	4
and		
CIS 11 ¹	Discrete Structures and Logic	4
CIS 33	Software Architectures and Algorithms	4
CIS 78	Digital Architectures for Computation	4
MATH 3A	Calculus I	5
MATH 3B	Calculus II	5
PHYS 4A	General Physics with Calculus	5
Major Elective Courses		
<i>Select one group of concentration electives below. Courses in each group are listed in the recommended sequence.</i>		
Group A	Cybersecurity - Secure Software Development	
CIS 71	Introduction to Information Systems Security	3
CIS 59	Applications in Information Security	3
CIS 56	Secure Coding in Java and .NET	3
CIS 57	Web Application PEN Testing	3
Group B	Cybersecurity - DevOps (Dev/Sec/Ops)	
CIS 55	Hacker Techniques, Exploits & Incident Handling	3
CIS 60	Computer Forensics Fundamentals	3
CIS 247 ²	Information Systems Skills Challenge	1
CIS 52	Cloud Security Fundamentals	3
CIS 53	Intrusion Detection In-Depth: Compliance, Security, Forensics and Troubleshooting	3
CIS 178	Build Automation for DevOps & QA	4
Group C	Blockchain Services and Mobile Applications	
CIS 66	XML Documents and Applications	2
CIS 93	Cross Platform Mobile Application Development	4
CIS 100	Introduction to Blockchain, Cryptocurrencies, and Identity	3
CS 43	High Performance Web Applications and Services	3
Group D	DevOps - Software Engineering Automation and Continuous Integration	
CIS 51	Introduction to Information Technology Project Management	4
CS 20	Python Application Programming	3
CS 80	Software Engineering	3
CIS 178	Build Automation for DevOps & QA	4
CIS 179	Agile Software Management and Project Automation	3
Group E	High Performance Computing, Data Science, and Artificial Intelligence	
CS 20	Python Application Programming	3
MATH 3E	Linear Algebra	3
CIS 8	Introduction to Parallel and Cloud Programming	4
CIS 60	Applications of Artificial Intelligence and Deep Learning	3
	Major Requirements	43-49
	Total Units	62-68

¹ MATH 11 accepted as substitute for CIS 11; ² CIS 247 requires participation in one round of Ethical Hacking Competition: National Cyber League, CyberPatriots, CyberDefenders, or equivalent.

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RECOMMENDED TWO-YEAR COURSE SEQUENCE

Students can use the following pattern to complete an Associate in Science in Computer Science degree. This is only one possible pattern. It maps a sequence of courses to help students complete their degree, regardless of the semester they begin class. This map does not replace consulting with a counselor. Students are advised to meet with a counselor at least once each semester to develop their individual Student Education Plan (SEP) and plan for their educational goals.

Subject #	Title	Units
1st Semester		
CIS 6	Introduction to Programming	5
or		
CIS 7	Control Structures and Objects	4
and		
MATH 3A	Calculus I	5
ENGL 1A	Composition and Reading	4
or		
ENGL 5	Critical Thinking in Reading and Writing	3
		1st Semester Units
		12-14
2nd Semester		
CIS 33	Software Architectures and Algorithms	4
MATH 3B	Calculus II	5
PHYS 4A	General Physics with Calculus	5
		2nd Semester Units
		14
3rd Semester		
CIS 11	Discrete Structures and Logic	4
Major Elective Courses		6-8
General Education Courses		4
		3rd Semester Units
		14-16
4th Semester		
CIS 78	Digital Architectures for Computation	4
Major Elective Courses		6-8
General Education Courses		5
		4th Semester Units
		15-17
		Units That May Double Counted for General Education
		7
		Total Units
		62-68

NEW PROGRAM

COMPUTER SCIENCE
CERTIFICATE OF ACHIEVEMENT

DESCRIPTION

Graduates of the Certificate of Achievement program in Computer Science will have the skills required for entry level employment in Software Development, Cybersecurity, or DevOps occupations. The Certificate of Achievement is the recommended program for students who already hold a baccalaureate or higher degree. It also prepares students for further study in computer Science as well as related areas such as Computer Engineering. The curriculum includes instruction in the fundamentals of problem solving and analysis, programming, data structures, and architecture. Additional requirements include Calculus, Physics and Discrete Mathematics. This program takes a contextualized approach to Computer Science through the choice of language, C++, and electives that can be aligned to facilitate High Performance Computing (HPC). It aims to develop skills in the design and implementation of software that operates correctly at extreme scale while leveraging emerging technologies in different industries.

Students who are interested in continuing their studies after completion of the Certificate of Achievement program should consult with the departmental chair, read the "Transfer Information" section of the college catalog, and discuss their plans with their program advisor or counselor. If you wish to substitute one class for another because of specific requirements of the transfer institution you will attend, consult with your articulation counselor. Four-year universities may have additional or different course requirements for completion of lower division courses. The web site www.assist.org can provide additional information about applicable courses for transfer.

CAREER OPPORTUNITIES

Career opportunities include entry-level jobs in the fields of software development, cybersecurity (secure software development), DevOps, blockchain services and mobile applications, high performance computing, data science, and artificial intelligence.

PROGRAM LEARNING OUTCOMES

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

1. Select the appropriate design and implementation to solve a problem within given constraints.
2. Analyze computer architecture to formulate estimates of performance.
3. Explain the fundamentals of problem solving and analysis.

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PROGRAM REQUIREMENTS

Subject #	Title	Units
Major Core Courses		
CIS 6	Introduction to Programming	5
or		
CIS 7	Control Structures and Objects	4
and		
CIS 11 ¹	Discrete Structures and Logic	4
CIS 33	Software Architectures and Algorithms	4
CIS 78	Digital Architectures for Computation	4
MATH 3A	Calculus I	5
MATH 3B	Calculus II	5
PHYS 4A	General Physics with Calculus	5
Recommended Optional Elective Courses (12-17 units)		
Select an optional group of concentration electives from the list below. Completion of electives is not required to receive this certificate.		
Group A	<i>Cybersecurity - Secure Software Development</i>	
CIS 71	Introduction to Information Systems Security	(3)
CIS 59	Applications in Information Security	(3)
CIS 56	Secure Coding in Java and .NET	(3)
CIS 57	Web Application PEN Testing	(3)
Group B	<i>Cybersecurity - DevOps (Dev/Sec/Ops)</i>	(3)
CIS 55	Hacker Techniques, Exploits & Incident Handling	(3)
CIS 60	Computer Forensics Fundamentals	(3)
CIS 247 ²	Information Systems Skills Challenge	(1)
CIS 52	Cloud Security Fundamentals	(3)
CIS 53	Intrusion Detection In-Depth: Compliance, Security, Forensics and Troubleshooting	(3)
CIS 178	Build Automation for DevOps & QA	(4)
Group C	<i>Blockchain Services and Mobile Applications</i>	
CIS 66	XML Documents and Applications	(2)
CIS 93	Cross Platform Mobile Application Development	(4)
CIS 100	Introduction to Blockchain, Cryptocurrencies, and Identity	(3)
CS 43	High Performance Web Applications and Services	(3)
Group D	<i>DevOps - Software Engineering Automation and Continuous Integration</i>	
CIS 51	Introduction to Information Technology Project Management	(4)
CS 20	Python Application Programming	(3)
CS 80	Software Engineering	(3)
CIS 178	Build Automation for DevOps & QA	(4)
CIS 179	Agile Software Management and Project Automation	(3)
Group E	<i>High Performance Computing, Data Science, and Artificial Intelligence</i>	(3)
CS 20	Python Application Programming	(3)
MATH 3E	Linear Algebra	(3)
CIS 8	Introduction to Parallel and Cloud Programming	(4)
CIS 60	Applications of Artificial Intelligence and Deep Learning	(3)
Total Units		31-32

¹ MATH 11 accepted as substitute for CIS 11.

² CIS 247 requires participation in one round of Ethical Hacking Competition: National Cyber League, CyberPatriots, CyberDefenders, or equivalent.

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RECOMMENDED TWO-YEAR COURSE SEQUENCE

Students can use the following pattern to complete a Computer Science Certificate of Achievement. This is only one possible pattern. It maps a sequence of courses to help students complete their degree, regardless of the semester they begin class. This map does not replace consulting with a counselor. Students are advised to meet with a counselor at least once each semester to develop their individual Student Education Plan (SEP) and plan for their educational goals.

Subject #	Title	Units
1st Semester		
CIS 6	Introduction to Programming	5
or		
CIS 7	Control Structures and Objects	4
and		
MATH 3A	Calculus I	5
	1st Semester Units	9-10
2nd Semester		
CIS 33	Software Architectures and Algorithms	4
MATH 3B	Calculus II	5
PHYS 4A	General Physics with Calculus	5
	2nd Semester Units	14
3rd Semester		
CIS 11	Discrete Structures and Logic	4
	3rd Semester Units	4
4th Semester		
CIS 78	Digital Architectures for Computation	4
	4th Semester Units	4
	Total Units	31-32

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NEW PROGRAM

CHIEF FIRE OFFICER CERTIFICATE OF ACHIEVEMENT

DESCRIPTION

Fire protection is a highly specialized professional field, requiring extensive knowledge and use of scientific principles. The Chief Fire Officer Certificate of Achievement program teaches successful application of the fundamental principles of fire protection including suppression of fires, rescue, emergency medical services, hazardous materials mitigation, disaster response/recovery, community risk reduction strategies, pre-planning for fire protection, and long-term community preparedness. Designed for the aspiring chief fire officer, this program provides managerial and leadership knowledge for the individual charged with supervising a battalion. While units in the program are transferable to many institutions, students should consult a counselor for information.

CAREER OPPORTUNITIES

Career opportunities include promotional advancement into fire service administration for members currently employed in the profession. This certificate prepares company level supervisors (lieutenant and captain) for chief officer (battalion chief or higher) positions in fire service organizations.

PROGRAM LEARNING OUTCOMES

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

1. Describe the roles and responsibilities of a chief officer.
2. Discuss emerging issues in today's fire and EMS agencies.
3. Describe effective managerial and leadership principles for the chief fire officer.

PROGRAM REQUIREMENTS

Subject #	Title	Units
Major Core Courses		
FISCI 236	Chief Officer 3A—Human Resource Management	1.5
FISCI 237	Chief Officer 3B—Budget and Fiscal Responsibilities	1
FISCI 238	Chief Officer 3C—General Administrative Functions	1.5
FISCI 239	Chief Officer 3D—Emergency Services Delivery Responsibilities	1.5
Major Elective Courses		
	Select five courses for 15-16 units from the following:	
BUS 52	Psychology and Human Relations	3
BUS 53	Personnel Management	3
CIS 40	Database Management	4
CIS 42	Spreadsheet Applications	4
COMM 3	Introduction to Human Communication	3
COMM 4	The Dynamics of Group Discussion	3
COMM 45	Public Speaking	3
MATH 13	Introduction to Statistics	4
	Total Units	20.5 - 21.5

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RECOMMENDED TWO-YEAR COURSE SEQUENCE

Students can use the following pattern to complete a Chief Fire Officer Certificate of Achievement. This is only one possible pattern. It maps a sequence of courses to help students complete their certificate, regardless of the semester they begin class. This map does not replace consulting with a counselor. Students are advised to meet with a counselor at least once each semester to develop their individual Student Education Plan (SEP) and plan for their educational goals.

Subject #	Title	Units
1st Semester		
FISCI 236	Human Resource Management for Chief Fire Officers	1.5
FISCI 237	Budget and Fiscal Responsibilities for Chief Fire Officers	1
and		
	Select 15-16 units from the following:	
COMM 3	Introduction to Human Communication	3
COMM 45	Public Speaking	3
MATH 13	Introduction to Statistics	4
	1st Semester Units	12.5
2nd Semester		
FISCI 238	General Administrative Functions for Chief Fire Officers	1.5
FISCI 239	Emergency Service Delivery Functions for Chief Fire Officers	1.5
and		
	Select 9 units from the following:	
COMM 4	The Dynamics of Group Discussion	3
CIS 40	Database Management	3
CIS 42	Spreadsheet Application	3
BUS 52	Psychology and Human Relations	3
BUS 53	Personnel Management	3
	Total Units	20.5 – 21.5

NEW PROGRAM

**CONSERVATION AND RESOURCE MANAGEMENT
CERTIFICATE OF ACHIEVEMENT**

DESCRIPTION

The Conservation and Resource Management Certificate of Achievement offers students a practical approach to ecological management practices. Students learn basic concepts of environmental science, are prepared for more specialized coursework, and establish minimum qualifications for entry-level employment.

Students in the Conservation and Resource Management program will:

- Build a solid foundation in the principles of ecology, and then learn to apply them to solve environmental problems.
- Focus on habitat restoration, natural resource conservation and management, water quality and watershed analysis, outdoor education, urban planning, and vegetation surveys.
- Participate in field trips and field-based courses to sites around the Bay Area.

CAREER OPPORTUNITIES

Students will be trained for entry-level work in three main areas relating to nature and the environment: (1) non-profit organizations; (2) government agencies, such as parks, water agencies, and open spaces; (3) environmental consulting firms. Internship opportunities will be provided, as well as pathways to transfer to environmental programs at four-year universities.

PROGRAM LEARNING OUTCOMES

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

1. Articulate the history of the conservation movement in the U.S. (with particular emphasis on California) and put the current state of natural resource management in its proper historical context.
2. Explain basic principles of ecology and how these principles are used in management and stewardship of natural spaces.
3. Demonstrate an understanding of how parks and other public natural spaces operate and function.
4. Demonstrate practical field skills used in the management and stewardship of natural resources.

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PROGRAM REQUIREMENTS

Subject #	Title	Units
Major Core Courses		
BIOL 15	Environmental Biology	3
COPED 476F	Occupational Work Experience in Environmental Management and Technology	3
ENVMT 1	Environmental Careers	1
ENVMT 2	Introduction to Sustainable Environmental Systems	3
ENVMT 2L	Introduction to Sustainable Environmental Systems Lab	1
ENVMT 55	Principles of Conservation and Land Management	3
ENVMT 56	Management of Public Parks and Natural Resources	3
ENVMT 57	Park Operations Practice and Skills	4
GEOL 21	Bay Area Field Studies	1
ENVMT 12	Environmental Racism and Justice	3
or		
AFRAM 38	Environmental Racism and Justice	3
Major Elective Courses		
	Select a minimum of 2 units from the following:	
ENVMT 8	Introduction to Outdoor Education	3
ENVMT 11	Sustainable Urban and Regional Planning	3
ENVMT 14	Environmental Impact Reports	2
ENVMT 40	From Tree to Sea: A Bay Area Environmental Cross Section	3
ENVMT 44	Introduction to Creek and Watershed Restoration	3
LANHT 81	Arborist Equipment Fundamentals	2
Interdisciplinary Elective Courses		
	Select a minimum of 2 units from the following:	
ART 166	Beginning Botanical Drawing	2
BIOL 9	Marine Biology	4
BIOL 29	Introduction to Biodiversity	4
BIOL 60A	Natural History of the Bay Area: The Local Parks	0.5
BIOL 60B	Natural History of the Bay Area: Mt. Diablo State Park	1
BIOL 60C	Natural History of the Bay Area: Herpetology	2
BIOL 61E	Natural History of the Tide Pools of the Greater Bay Area	0.5
BIOL 61G	Natural History: Mammals of the Greater Bay Area	2
BIOL 61H	Natural History of the Bay Area: Butterflies and Moths	2
BIOL 61I	Natural History of the Bay Area: Bryophytes	2
BIOL 61K	Natural History of the Bay Area: Lichens	2
BIOL 62S	Natural History of the Islands of California	2
BIOL 65F	Natural History of Tahiti (French Polynesia)	1
BIOL 80A	Raptors of Central California and the Bay Area	0.5
BIOL 80B	Bird Songing: The Ecology of Bird Songs and Identification by Ear	0.5
BIOL 80C	Fundamentals of Ornithology and Birding in Central California/Bay Area	0.5
BIOL 80D	Ecology of the California Condor	1.5
GEOG 1	Physical Geography	3
GEOL 1	Introduction to Physical Geology	4
GEOL 12	Environmental Geology	3
LANHT 2	Plant Materials: Tree ID and Culture with Lab (Day)	3
LANHT 2E	Plant Materials: Tree ID and Culture with Lab (Evening)	3
LANHT 5A	Plant Materials: Fall Native Plant ID and Culture with Lab (Day)	3

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LANHT 5EA	Plant Materials: Fall Native Plant ID and Culture with Lab (Evening)	3
LANHT 5B	Plant Materials: Spring Native Plant ID and Culture (Day)	3
LANHT 5EB	Plant Materials: Spring Native Plant ID and Culture (Day)	3
LANHT 10	Insect Pests	3
LANHT 16	Soil Management	3
LANHT 23	Plant Terminology	2.5
LANHT 45A	Mushroom Cultivation	2
LANHT 50	Plant Taxonomy	3
NATAM 76E	California Indian Ecology of the Central Coast	1.5
Total Units		29

RECOMMENDED TWO-YEAR COURSE SEQUENCE

Students can use the following pattern to complete a Conservation and Resource Management Certificate of Achievement. This is only one possible pattern. It maps a sequence of courses to help students complete their certificate, regardless of the semester they begin class. This map does not replace consulting with a counselor. Students are advised to meet with a counselor at least once each semester to develop their individual Student Education Plan (SEP) and plan for their educational goals.

Course Number	Course Title	Units
1st Semester		
BIOL 15	Environmental Biology	3
ENVMT 12	Environmental Racism and Justice	3
or		
AFRAM 38	Environmental Racism and Justice	(3)
1st Semester Units		6
2nd Semester		
ENVMT 2	Introduction to Sustainable Environmental Systems	3
ENVMT 2L	Introduction to Sustainable Environmental Systems Lab	1
ENVMT 55	Principles of Conservation and Land Management	3
Elective	Major Elective	2
2nd Semester Units		9
3rd Semester		
ENVMT 1	Environmental Careers	1
ENVMT 56	Management of Public Parks and Natural Resources	3
Elective	Interdisciplinary Elective	2
3rd Semester Units		6
4th Semester		
GEOL 21	Bay Area Field Studies	1
ENVMT 57	Park Operations Practice and Skills	4
COPED 476F	Occupational Work Experience in Environmental Management and Technology	3
4th Semester Units		8

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NEW PROGRAM

FIRE OFFICER CERTIFICATE OF ACHIEVEMENT

Description

Fire protection is a highly specialized professional field, requiring extensive knowledge and use of scientific principles. The Fire Officer Certificate of Achievement program teaches successful application of the fundamental principles of fire protection including suppression of fires, rescue, emergency medical services, hazardous materials mitigation, disaster response/recovery, community risk reduction strategies, pre-planning for fire protection, and long term community preparedness. Designed for the aspiring fire officer, this program provides managerial and leadership knowledge for the individual charged with supervising a fire company.

Career Opportunities

Career opportunities may include promotional advancement for members currently employed in the profession and First-Line Supervisors of Firefighting and Prevention Workers.

Program Learning Outcomes

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

1. Describe emerging trends in fire service organizations for the fire officer.
2. Describe managerial and leadership traits for success as a fire officer.

PROGRAM REQUIREMENTS

Subject #	Title	Units
Major Core Courses		
FISCI 230	Company Officer 2A—Human Resource Management	2.5
FISCI 231	Company Officer 2B—General Administrative Functions	1.5
FISCI 232	Company Officer 2C—Fire Inspection and Investigation	2.5
FISCI 233	Company Officer 2D—All Risk Command Operations	2.5
FISCI 234	Company Officer 2E—Wildland Incident Operations	2.5
FISC 235	Instructor I: Instructional Methodology	2.5
COMM 3	Introduction to Human Communication	3
or		
COMM 4	The Dynamics of Group Discussion	3
and		
COMM 45	Public Speaking	3
ENGL 208	Writing Workshop	1
	Total Units	21

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RECOMMENDED TWO-YEAR COURSE SEQUENCE

Students can use the following pattern to complete a Fire Officer Certificate of Achievement. This is only one possible pattern. It maps a sequence of courses to help students complete their certificate, regardless of the semester they begin class. This map does not replace consulting with a counselor. Students are advised to meet with a counselor at least once each semester to develop their individual Student Education Plan (SEP) and plan for their educational goals.

Subject #	Title	Units
1st Semester		
FISCI 230	Company Officer 2A—Human Resource Management	2.5
FISCI 231	Company Officer 2B—General Administrative Functions	1.5
FISCI 232	Company Officer 2C—Fire Inspection and Investigation	2.5
FISCI 234	Company Officer 2E—Wildland Incident Operations	2.5
ENGL 208	Writing Workshop	1
	1st Semester Units	10
2nd Semester		
FISCI 233	Company Officer 2D—All Risk Command Operations	2.5
FISCI 235	Instructor I: Instructional Methodology	2.5
COMM 3	Introduction to Human Communication	3
or		
COMM 4	The Dynamics of Group Discussion	3
and		
COMM 45	Public Speaking	3
	2nd Semester Units	11
	Total Units	19

NEW PROGRAM

**FIRE TECHNOLOGY
ASSOCIATE IN SCIENCE**

Description

Fire protection is a highly specialized professional field, requiring extensive knowledge and use of scientific principles. The Fire Technology Associate in Science degree program teaches successful application of the fundamental principles of fire protection including suppression of fires, rescue, emergency medical services, hazardous materials mitigation, disaster response/recovery, community risk reduction strategies, pre-planning for fire protection, and long term community preparedness. Designed for direct job entry and promotional advancement, this program provides technical knowledge and the ability to work within an organized system at a fire or other emergency scene. While units in the program are transferable to many institutions, students should consult a counselor for information.

Career Opportunities

Fire Technology career opportunities may include entry level Firefighters, First-Line Supervisors of Fire Fighting and Prevention Workers, Fire Inspectors and Investigators and promotional advancement for members currently employed in the profession.

Program Learning Outcomes

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

1. Demonstrate the ability to perform the required skills of an emergency medical technician (EMT)
2. Demonstrate the ability to perform skills related to fire suppression.
3. Demonstrate leadership, teamwork and decision making in the management of multiple personnel on emergency scenes.

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PROGRAM REQUIREMENTS

Subject #	Title	Units
Major Core Courses		
EMT 211	Emergency Medical Technician- Basic	6
FISCI 201	Principles of Fire an Emergency Services	3
FISCI 202	Fire Prevention	3
FISCI 203	Building Construction for the Fire Service	3
FISCI 204	Fire Behavior and Combustion	3
FISCI 205	Fire protection Systems	3
FISCI 206	Principles of Fire and Emergency Services and Survival	3
Major Elective Courses		
	<i>Select one group of major elective courses from the following for a total of 5.5 – 14 units:</i>	
Group A		
FISCI 211	Firefighter Academy	10
or		
Group B		
FISCI 230	Company Officer 2A — Human Resource Management	2.5
FISCI 231	Company Officer 2B —General Administrative Functions	1.5
FISCI 232	Company Officer 2C -- Fire Inspection and Investigation	2.5
FISCI 233	Company Officer 2D —All Risk Command Operations	2.5
FISCI 234	Company Officer 2E —Wildland Incident Operations	2.5
FISCI 235	Instructor 1: Instructional Methodology	2.5
or		
Group C		
FISCI 236	Chief Officer 3A —Human Resource Management	1.5
FISCI 237	Chief Officer 3B —General Administrative Functions	1
FISCI 238	Chief Officer 3C—General Administrative Functions	1.5
FISCI 239	Chief Officer 3D—Emergency Services Delivery Responsibilities	1.5
	Major Requirements	29.5-38
	Total Units	60

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RECOMMENDED TWO-YEAR COURSE SEQUENCE

Students can use the following pattern to complete a Fire Technology Associate in Science degree. This is only one possible pattern. It maps a sequence of courses to help students complete their degree, regardless of the semester they begin class. This map does not replace consulting with a counselor. Students are advised to meet with a counselor at least once each semester to develop their individual Student Education Plan (SEP) and plan for their educational goals.

Subject #	Title	Units
1st Semester		
EMT 211	Emergency Medical Technician-Basic	6
FISCI 201	Principles of Fire and Emergency Services	3
FISCI 202	Fire Prevention	3
	1st Semester Units	12
2nd Semester		
FISCI 203	Building Construction for the Fire Service	3
FISCI 204	Fire Behavior and Combustion	3
FISCI 205	Fire Protection Systems	3
FISCI 206	Principles of Fire and Emergency Services Safety and Survival	3
	2nd Semester Units	12
3rd Semester		
Group A		
FISCI 211	Firefighter Academy	10
or		
Group B		
FISCI 230	Company Officer 2A—Human Resource Management	2.5
FISCI 231	Company Officer 2B—General Administrative Functions	1.5
FISCI 232	Company Officer 2C—Fire Inspection and Investigation	2.5
or		
Group C		
FISCI 236	Chief Officer 3A—Human Resource Management	1.5
FISCI 237	Chief Officer 3B—Budget and Fiscal Responsibilities	1
	3rd Semester Units	2.5 - 10
4th Semester		
Group B		
FISCI 233	Company Officer 2D--All Risk Command Operations	2.5
FISCI 234	Company Officer 2E—Wildland Incident Operations	2.5
FISCI 235	Instructor I: Instructional Methodology	2.5
or		
Group C		
FISCI 238	Chief Officer 3C—General Administrative Functions	1.5
FISCI 239	Chief Officer 3D—Emergency services Delivery Responsibilities	1.5
	4th Semester Units	3.5 -7.5

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NEW PROGRAM

FIRE TECHNOLOGY

CERTIFICATE OF ACHIEVEMENT

Description

Fire protection is a highly specialized professional field, requiring extensive knowledge and use of scientific principles. The Fire Technology Certificate of Achievement program teaches successful application of the fundamental principles of fire protection including suppression of fires, rescue, emergency medical services, hazardous materials mitigation, disaster response/recovery, community risk reduction strategies, pre-planning for fire protection, and long term community preparedness. Designed for direct job entry and promotional advancement, this program provides technical knowledge and the ability to work within an organized system at a fire or other emergency scene. While units in the program are transferable to many institutions, students should consult a counselor for information.

Career Opportunities

Fire Technology career opportunities may include entry level Firefighters, First-Line Supervisors of Fire Fighting and Prevention Workers, Fire Inspectors and Investigators and promotional advancement for members currently employed in the profession.

Program Learning Outcomes

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

1. Demonstrate the ability to perform the required skills of an emergency medical technician (EMT)
2. Discuss the roles and responsibilities of a firefighter.
3. Discuss trends and best practices that enhance firefighter safety and well-being.

PROGRAM REQUIREMENTS

Subject #	Title	Units
Major Core Course		
EMT 211	Emergency Medical Technician- Basic	6
Major Elective Courses		
	<i>Select four courses for 12 units from the following:</i>	
FISCI 201	Principles of Fire and Emergency Services	3
FISCI 202	Fire Prevention	3
FISCI 203	Building Construction for the Fire Service	3
FISCI 204	Fire Behavior and Combustion	3
FISCI 205	Fire protection Systems	3
FISCI 206	Principles of Fire and Emergency Services and Survival	3
	Total Units	18

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RECOMMENDED ONE-YEAR COURSE SEQUENCE

Students can use the following pattern to complete the Fire Technology Certificate of Achievement program. This is only one possible pattern. It maps a sequence of courses to help students complete their certificate, regardless of the semester they begin class. This map does not replace consulting with a counselor. Students are advised to meet with a counselor at least once each semester to develop their individual Student Education Plan (SEP) and plan for their educational goals.

Subject #	Title	Units
1st Semester		
EMT 211	Emergency Medical Technician-Basic	6
Major Elective Courses		
	<i>Select four courses for 12 units from the following:</i>	
FISCI 201	Principles of Fire and Emergency Services	3
	1st Semester Units	6-9
2nd Semester		
FISCI 202	Fire Prevention	3
FISCI 203	Building Construction for the Fire Service	3
FISCI 204	Fire Behavior and Combustion	3
FISCI 205	Fire Protection Systems	3
FISCI 206	Principles of Fire and Emergency Services Safety and Survival	3
	2nd Semester Units	9-12

NEW PROGRAM

**FLUORESCENCE BIOSCIENCE MICROSCOPY
CERTIFICATE OF ACHIEVEMENT**

DESCRIPTION

The Fluorescence Bioscience Microscopy Certificate of Achievement program prepares students for entry- and mid-level jobs in bioscience imaging, research and microscopy, including in the biotech industry. A Certificate of Achievement will be awarded upon satisfactory completion of the courses specified below.

CAREER OPPORTUNITIES

Career opportunities include employment as a director of an imaging core, research lab technician, imaging specialist in research lab or biotechnology company, imaging equipment sales consultant, imaging product management, software development and sales, microscopy training and research consultant.

PROGRAM LEARNING OUTCOMES

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

1. Acquire digital images on a variety of research-level digital optical microscopes, including motorized widefield fluorescence systems, a spectral imaging confocal and a spinning disk confocal.
2. Master diverse microscopy software programs for all four main brands of research optical microscopes.
3. Design experiments, critically analyze data, and report results.

PROGRAM REQUIREMENTS

Subject #	Title	Units
Major Core Courses		
BIOSC 103	Confocal Microscopy and Research Design	6
BIOSC 104	Bioscience Practicum Research	6
Total Units		12

RECOMMENDED ONE-YEAR COURSE SEQUENCE

Students can use the following pattern to complete the Fluorescence Bioscience Microscopy Certificate of Achievement program. This is only one possible pattern. It maps a sequence of courses to help students complete their certificate, regardless of the semester they begin class. This map does not replace consulting with a counselor. Students are advised to meet with a counselor at least once each semester to develop their individual Student Education Plan (SEP) and plan for their educational goals.

Subject #	Title	Units
Fall Semester		
BIOSC 103	Confocal Microscopy and Research Design	6
Fall Semester Units		6
Spring Semester		
BIOSC 104	Bioscience Practicum Research	6
Spring Semester Units		6
Total Units		12

NEW PROGRAM

NATURAL HISTORY AND RESOURCES CERTIFICATE OF ACHIEVEMENT

DESCRIPTION

The Natural History & Resources Certificate of Achievement educates students on the biodiversity of the Bay Area and beyond and how that biodiversity interacts with humans in different ecosystems and scales. Coursework provides a foundation on local flora, fauna, and geology, as well as an ecosystem-driven approach to explore natural resources such as water, forests, and ecosystem services. Graduates of the program can expect to be prepared for entry-level employment in the field of natural resources and the environment.

In the Natural History & Resources Program, students will...

- Discover the vast diversity of animals, plants, fungi, and microscopic organisms through courses in botany, ornithology, entomology, herpetology, and more.
- Learn the principles of biogeography and the interplay between biology and geology.
- Participate in field trips and field courses around the Bay Area and beyond.

CAREER OPPORTUNITIES

The Natural History and Resources Certificate of Achievement prepares students for careers focused on organismal diversity and ecosystem functioning, specifically the positions of biological technician, ecological technician, ecological restoration technician, nature interpreter, field technician, biological consultant, and environmental consultant working for natural resource government agencies, environmental non-profits, and environmental consulting firms.

PROGRAM LEARNING OUTCOMES

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

1. Provide an overview of the form and function of local biodiversity (flora and fauna) and understand the ecological roles of these organisms.
2. Demonstrate an understanding of the various ecosystems and natural resources in the Bay Area and their importance.
3. Demonstrate practical skills, such as species identification, field documentation, and environmental impact report preparation, used by professionals in the field.

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PROGRAM REQUIREMENTS

Subject #	Title	Units
Major Core Courses		
BIOL 29	Introduction to Biodiversity	4
ENVMT 1	Environmental Careers	1
ENVMT 2	Introduction to Sustainable Environmental Systems	3
ENVMT 2L	Introduction to Sustainable Environmental Systems Lab	1
GEOG 1	Physical Geography	3
ENVMT 12	Environmental Racism and Justice	3
or		
AFRAM 38	Environmental Racism and Justice	(3)
Major Elective Courses		
	Select a minimum of 9 units from the following	
ART 166	Beginning Botanical Drawing	2
BIOL 9	Marine Biology	4
BIOL 60A	Natural History of the Bay Area: The Local Parks	0.5
BIOL 60B	Natural History of the Bay Area: Mt. Diablo State Park	1
BIOL 60C	Natural History of the Bay Area: Herpetology	2
BIOL 61E	Natural History of the Tide Pools of the Greater Bay Area	0.5
BIOL 61G	Natural History: Mammals of the Greater Bay Area	2
BIOL 61H	Natural History of the Bay Area: Butterflies and Moths	2
BIOL 61I	Natural History of the Bay Area: Bryophytes	2
BIOL 61K	Natural History of the Bay Area: Lichens	2
BIOL 62S	Natural History of the Islands of California	2
BIOL 65F	Natural History of Tahiti (French Polynesia)	1
BIOL 80A	Raptors of Central California and the Bay Area	0.5
BIOL 80B	Bird Songing: The Ecology of Bird Songs and Identification by Ear	0.5
BIOL 80C	Fundamentals of Ornithology and Birding in Central California/Bay Area	0.5
BIOL 80D	Ecology of the California Condor	1.5
GEOL 1	Introduction to Physical Geology	4
GEOL 12	Environmental Geology	3
GEOL 21	Bay Area Field Studies	1
LANHT 2	Plant Materials: Tree ID and Culture with Lab (Day)	3
LANHT 2E	Plant Materials: Tree ID and Culture with Lab (Evening)	3
LANHT 5A	Plant Materials: Fall Native Plant ID and Culture with Lab (Day)	3
LANHT 5EA	Plant Materials: Fall Native Plant ID and Culture with Lab (Evening)	3
LANHT 5B	Plant Materials: Spring Native Plant ID and Culture (Day)	3
LANHT 5EB	Plant Materials: Spring Native Plant ID and Culture (Day)	3
LANHT 10	Insect Pests	3
LANHT 16	Soil Management	3
LANHT 23	Plant Terminology	2.5
LANHT 45A	Mushroom Cultivation	2
LANHT 50	Plant Taxonomy	3
NATAM 76E	California Indian Ecology of the Central Coast	1.5
Interdisciplinary Elective Courses		
	Select a minimum of 2 units from the following	
BIOL 15	Environmental Biology	3
COPED 476F	Occupational Work Experience in Environmental Management and Technology	3

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ENVMT 55	Principles of Conservation and Land Management	3
ENVMT 56	Management of Public Parks and Natural Resources	3
ENVMT 57	Park Operations Practice and Skills	4
ENVMT 8	Introduction to Outdoor Education	3
ENVMT 11	Sustainable Urban and Regional Planning	3
ENVMT 14	Environmental Impact Reports	2
ENVMT 40	From Tree to Sea: A Bay Area Environmental Cross Section	3
ENVMT 44	Introduction to Creek and Watershed Restoration	3
LANHT 81	Arborist Equipment Fundamentals	2
ENVMT 5	Oakland Food Culture	3
ENVMT 35	Introduction to Urban Agroecology	3
	Total Units	26

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RECOMMENDED TWO-YEAR COURSE SEQUENCE

Students can use the following pattern to complete a Natural History & Resources Certificate of Achievement. This is only one possible pattern. It maps a sequence of courses to help students complete their certificate, regardless of the semester they begin class. This map does not replace consulting with a counselor. Students are advised to meet with a counselor at least once each semester to develop their individual Student Education Plan (SEP) and plan for their educational goals.

Subject #	Title	Units
1st Semester		
BIOL 29	Introduction to Biodiversity	4
GEOG 1	Physical Geography	3
	1st Semester Units	7
2nd Semester		
ENVMT 2	Introduction to Sustainable Environmental Systems	3
ENVMT 2L	Introduction to Sustainable Environmental Systems Lab	1
Elective	Major Elective	2
Elective	Major Elective	2
	2nd Semester Units	8
3rd Semester		
ENVMT 1	Environmental Careers	1
ENVMT 12	Environmental Racism and Justice	3
or		
AFRAM 38	Environmental Racism and Justice	(3)
Elective	Major Elective	2
Elective	Interdisciplinary Elective	2
	3rd Semester Units	8
4th Semester		
Elective	Major Elective	2
Elective	Major Elective	1
	4th Semester Units	3
	Total Units	26

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NEW PROGRAM

OPTICAL MICROSCOPY CERTIFICATE OF ACHIEVEMENT

DESCRIPTION

The Optical Microscopy Certificate of Achievement program prepares students for entry-level jobs in bioscience microscopy and imaging, including in the biotech industry. A Certificate of Achievement will be awarded upon satisfactory completion of the courses specified below.

CAREER OPPORTUNITIES

Career opportunities include employment as a biotech lab assistant in biotech, academic research, and government research, imaging core assistant, imaging equipment and software vendor (field applications, inside sales, technical support).

PROGRAM LEARNING OUTCOMES

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

1. Confidently acquire digital images on a variety of research-level optical microscopes, including phase, DIC, and widefield epifluorescence.
2. Operate diverse microscopy software programs.
3. Prepare brightfield specimens for optical microscopy.
4. Execute basic cell and molecular biology lab techniques, including aseptic technique, following good lab practices.
5. Identify areas of the biotech industry that are relevant to their chosen career pathways.

PROGRAM REQUIREMENTS

Subject #	Title	Units
Major Core Courses		
BIOSC 101	Theory and Practice of Microscopy	6
BIOSC 102	Fluorescence Microscopy and Specimen Prep	6
Total Units		12

RECOMMENDED ONE-YEAR COURSE SEQUENCE

Students can use the following pattern to complete the Optical Microscopy Certificate of Achievement program. This is only one possible pattern. It maps a sequence of courses to help students complete their certificate, regardless of the semester they begin class. This map does not replace consulting with a counselor. Students are advised to meet with a counselor at least once each semester to develop their individual Student Education Plan (SEP) and plan for their educational goals.

Subject #	Title	Units
Fall Semester		
BIOSC 101	Theory and Practice of Microscopy	6
Fall Semester Units		6
Spring Semester		
BIOSC 102	Fluorescence Microscopy and Specimen Prep	6
Spring Semester Units		6
Total Units		12

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NEW NONCREDIT PROGRAM

RESEARCH SKILLS CERTIFICATE OF COMPETENCY

DESCRIPTION

The Certificate of Competency in Research Skills is designed to provide students with a foundation in information literacy, critical thinking, ethical use of information, and research. This certificate is intended to improve the research and information literacy skills of student desiring to increase their capacity for pursuing college-level coursework, gaining employment in today's digital workforce, and community engagement. Students enrolled in the Research Skills program may use the certification as a means of providing college instructors and employers of their ability to find, evaluate, and use credible and relevant information in an ethical manner. Students are required to complete three courses for a total of six (6) instructional hours. Each course must be completed with a grade of Pass or Satisfactory Progress.

CAREER OPPORTUNITIES

Any occupations in the educational, financial, legal, and medical fields that involve observing, receiving, and otherwise obtaining information.

PROGRAM LEARNING OUTCOMES

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

1. Apply information literacy skills to academic, professional, and personal life.
2. Complete a basic research project from topic development to information source selection, evaluation, and citation.
3. Analyze, synthesize, and apply information practically and ethically.

PROGRAM REQUIREMENTS

Subject #	Title	Hours
Major Core Courses		
LIS 511	Research Skills I	2
LIS 512	Research Skills II	2
LIS 513	Research Skills III	2
Total Hours		6

RECOMMENDED ONE-YEAR COURSE SEQUENCE

Students can use the following pattern to complete an Academic Composition Skills Certificate of Competency. This is only one possible pattern. It maps a sequence of courses to help students complete their certificate, regardless of the semester they begin classes. This map does not replace consulting with a counselor. Students are advised to meet with a counselor at least once each semester to develop their individual Student Education Plan (SEP) and plan for their educational goals.

Subject #	Title	Hours
Major Core Courses		
1st Year- Fall or Spring		
LIS 511	Research Skills I	2
LIS 512	Research Skills II	2
LIS 513	Research Skills III	2
Total Hours		6

NEW PROGRAM

**URBAN AGROECOLOGY
 CERTIFICATE OF ACHIEVEMENT**

DESCRIPTION

The Urban Agroecology Certificate of Achievement program trains students in the skills and practices of urban agriculture, focusing on ecologically restorative food production, project planning, and small-scale enterprise development. Graduates of the program will be prepared for entry-level employment in the local urban agriculture industry or non-profit organizations.

Students in the Urban Agroecology Program will...

- Learn the principles of sustainable farming and food systems in the urban environment.
- Plan and design home, school, and community gardens and farms.
- Find out about food production, food access in under-served communities, and public health implications of food distribution.

CAREER OPPORTUNITIES

The Certificate of Achievement provides training for students in the fundamentals of agroecology in an urban setting for future employment as resource managers, agronomists, food technicians, and small business operators in the private sector and in agricultural non-profit organizations. Those pursuing an educational career pathway will be prepared for jobs in outreach and interpretation for government agency jobs in sustainability.

PROGRAM LEARNING OUTCOMES

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

1. Contribute to the development of locally-owned enterprises based in the production, processing, distribution, and sale of fresh foods.
2. Develop and implement groundbreaking techniques for carrying out sustainable agriculture in conjunction with ecosystem restoration.
3. Serve as educators in their own communities, inspiring and enabling others to contribute to our cities' health and sustainability through personal choices.
4. Increase social equity by increasing employment, management, and ownership opportunities for the East Bay's most economically vulnerable residents.

PROGRAM REQUIREMENTS

Subject #	Title	Units
Major Core Courses		
ENVMT 1	Environmental Careers	1
ENVMT 2	Introduction to Sustainable Environmental Systems	3
ENVMT 2L	Introduction to Sustainable Environmental Systems Lab	1
ENVMT 3	Social Issues in Agriculture	3
ENVMT 5	Oakland Food Culture	3
ENVMT 35	Introduction to Urban Agroecology	3
ENVMT 35L	Urban Agroecology Lab	1
ENVMT 12	Environmental Racism and Justice	3
or		

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AFRAM 38	Environmental Racism and Justice	(3)
Major Elective Courses		
	Select a minimum of 5 units from the following	
ENVMT 16	Introduction to Healthy Community Systems	3
LANHT 28A	Permaculture Design I	3
LAMNHT 45A	Mushroom Cultivation I	2
LANHT 76	Edible Landscaping	3
LANHT 77	Crop Production, Marketing, and Sales	1.5
NUTR 31	Food Production Systems	3
Interdisciplinary Elective Courses		
	Select a minimum of 2 units from the following	
BIOL 15	Environmental Biology	3
BIOL 29	Introduction to Biodiversity	4
BIOL 60C	Natural History of the Bay Area: Herpetology	2
BIOL 61G	Natural History: Mammals of the Greater Bay Area	2
BIOL 61H	Natural History of the Bay Area: Butterflies and Moths	2
COPED 476F	Occupational Work Experience in Environmental Management and Technology	3
ENVMT 8	Introduction to Outdoor Education	3
ENVMT 11	Sustainable Urban and Regional Planning	3
ENVMT 14	Environmental Impact Reports	2
ENVMT 40	From Tree to Sea: A Bay Area Environmental Cross Section	3
ENVMT 44	Introduction to Creek and Watershed Restoration	3
ENVMT 55	Principles of Conservation and Land Management	3
ENVMT 56	Management of Public Parks and Natural Resources	3
ENVMT 57	Park Operations Practice and Skills	4
GEOG 1	Physical Geography	3
GEOL 21	Bay Area Field Studies	1
LANHT 2	Plant Materials: Tree ID and Culture with Lab (Day)	3
LANHT 2E	Plant Materials: Tree ID and Culture with Lab (Evening)	3
LANHT 5A	Plant Materials: Fall Native Plant ID and Culture with Lab (Day)	3
LANHT 5B	Plant Materials: Spring Native Plant ID and Culture with Lab (Day)	3
LANHT 5EA	Plant Materials: Fall Native Plant ID and Culture (Evening)	3
LANHT 5EB	Plant Materials: Spring Native Plant ID and Culture (Evening)	3
LANHT 10	Insect Pests	3
LANHT 16	Soil Management	3
LANHT 23	Plant Terminology	2.5
LANHT 45A	Mushroom Cultivation I	2
LANHT 50	Plant Taxonomy	3
LANHT 81	Arborist Equipment Fundamentals	2
NATAM 76E	California Indian Ecology on the Central Coast	1.5
	Total Units	25

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RECOMMENDED TWO-YEAR COURSE SEQUENCE

Students can use the following pattern to complete a Urban Agroecology Certificate of Achievement. This is only one possible pattern. It maps a sequence of courses to help students complete their certificate, regardless of the semester they begin class. This map does not replace consulting with a counselor. Students are advised to meet with a counselor at least once each semester to develop their individual Student Education Plan (SEP) and plan for their educational goals.

Subject #	Title	Units
1st Semester		
ENVMT 1	Environmental Careers	1
ENVMT 5	Oakland Food Culture	3
Elective	Major Elective	3
		1st Semester Units
		7
2nd Semester		
ENVMT 2	Introduction to Sustainable Environmental Systems	3
ENVMT 2L	Introduction to Sustainable Environmental Systems Lab	1
ENVMT 35	Introduction to Urban Agroecology	3
ENVMT 35L	Introduction to Urban Agroecology Lab	1
		2nd Semester Units
		8
3rd Semester		
ENVMT 12	Environmental Racism and Justice	3
Elective	Interdisciplinary Elective	2
		3rd Semester Units
		5
4th Semester		
ENVMT 3	Social Issues in Agriculture	3
Elective	Major Elective	2
		4th Semester Units
		5
		Total Units
		25

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CATALOG CORRECTION, PAGE 279

CORRECTION HIGHLIGHTED BELOW IN YELLOW

NURSERY MANAGEMENT TRACK: LEVEL C. NURSERY MANAGEMENT SPECIALIST CERTIFICATE OF ACHIEVEMENT

DESCRIPTION

The Nursery Management Specialist Certificate of Achievement program provides advanced training for working in the wholesale and retail nursery industry. Students will learn growing and maintenance practices for a wide variety of plant species, advanced propagation techniques, watering systems, basic soil and fertilizer chemistry, pest and disease control, and nursery business operations.

A Certificate of Achievement will be awarded upon satisfactory completion of the certificate requirements specified below.

NOTE: Students must satisfactorily complete the Level B Intermediate Nursery Management requirements to qualify for the Level C Nursery Management Specialist Certificate of Achievement.

PROGRAM LEARNING OUTCOMES

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

1. Perform state-of-the-art sustainable operations of a professional nursery person in both wholesale and retail nursery operations.
2. Demonstrate ability to grow and/or maintain nursery stock including basic nursery propagation, soils, watering systems, fertilizers, pest and disease control, and plant evaluation.
3. Demonstrate knowledge of all aspects of nursery management including the basics of financial, site operations, personnel, and marketing aspects.

NOTE: Students should see a counselor at least once each semester to plan for their educational goal(s).

PROGRAM REQUIREMENTS

Subject#	Title	Units
Major Core Courses		
Level B Intermediate Nursery Management Required Units	Intermediate Landscape Design and Construction	30
plus		
Level C Requirements listed below:		
LANHT 206	Landscape Business Practices	3
LANHT 52	Special Projects in Plant Propagation	3
Major Elective Courses		
Group A	Select one additional plant ID courses from the following (select course(s) not previously taken):	
	LANHT 2 or 2E; 3 or 3E; 4 or 4E; 5A, 5B, 5EA, or 5EB; 6A, 6B, 6EA, or 6EB; 7 or 7E; 40 or 40E	3
Group B	Select a minimum of 3 units from the following (select course(s) not previously taken):	
LANHT 10	Insects: Identification and Management	3
LANHT 11	Plant Diseases and Their Control	3
LANHT 12	Weeds in the Urban Landscape	3
Total Units		42

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CATALOG CORRECTION, PAGE 202

CORRECTIONS HIGHLIGHTED BELOW IN YELLOW

INFRASTRUCTURE SECURITY ASSOCIATE IN SCIENCE (AS) DEGREE

DESCRIPTION

The Infrastructure Security Associate in Science degree provides best practices and competencies for students to design, install and implement services and applications; manage and optimize security infrastructure to ensure compliance with security controls; help prevent, detect, investigate and respond to operational security threats and attacks; facilitate security vulnerability assessments, penetration tests and risk assessments; investigate security events and incidents, including forensic analysis; represent security interests on project teams by ensuring security standards and requirements; conduct security research, analysis and review of infrastructure designs to ensure compliance with company security policies; evaluate new products and technologies to protect against existing and emerging security threats; and develop and implement information security policies and procedures.

To qualify for the Associate in Science in Infrastructure Security degree, students must satisfactorily complete the Degree Major requirements specified below and the local AA/AS General Education requirements. See the Associate Degrees and Certificates section of this catalog for more information on the local AA/AS General Education requirements.

CAREER OPPORTUNITIES

Career opportunities with this degree include Infrastructure Security Specialist and Infrastructure Security Analyst.

PROGRAM LEARNING OUTCOMES

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

1. Install & Configure software and upgrades.
2. Install, configure & test network devices, servers and workstations.
3. Troubleshoot hardware & network problems.

PROGRAM REQUIREMENTS

Subject #	Title	Units
Major Core Courses		
CIS 5	Introduction to Computer Science	5
or		
CIS 6	Introduction to Computer Programming	5
or		
CIS 7	Control Structures and Objects	4
and		
CIS 52	Cloud Security Fundamentals	3
CIS 53	Intrusion Detection In-Depth: Compliance, Security, Forensics and Troubleshooting	3
CIS 54	IT Security Goals, Strategy, Policy, and Leadership	3
CIS 55	Hacker Techniques, Exploits & Incident Handling	3
CIS 58	Hacker Guard – Baseline Training for IT Administrators and Operations	3
CIS 60	Computer Forensics Fundamentals	3
CIS 72	Systems and Network Administration	3
COPED 469	Occupational Work Experience in Security Administration	3
Major Elective Course: Select 13-14 units from courses in Computer Information Systems		
Major Requirements		28-29
Total Units		60

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CATALOG CORRECTION, PAGE 204

CORRECTIONS HIGHLIGHTED BELOW IN YELLOW

INFRASTRUCTURE SECURITY CERTIFICATE OF ACHIEVEMENT

DESCRIPTION

The Infrastructure Security Certificate of Achievement provides best practices and competencies for students to design, install and implement services and applications; manage and optimize security infrastructure to ensure compliance with security controls; help prevent, detect, investigate and respond to operational security threats and attacks; facilitate security vulnerability assessments, penetration tests and risk assessments; investigate security events and incidents, including forensic analysis; represent security interests on project teams by ensuring security standards and requirements; conduct security research, analysis and review of infrastructure designs to ensure compliance with company security policies; evaluate new products and technologies to protect against existing and emerging security threats; and develop and implement information security policies and procedures.

A Certificate of Achievement will be awarded upon satisfactory completion of the certificate requirements specified below.

CAREER OPPORTUNITIES

Career opportunities with this degree include Infrastructure Security Specialist and Infrastructure Security Analyst.

PROGRAM LEARNING OUTCOMES

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

1. Install & Configure software and upgrades.
2. Install, configure & test network devices, servers and workstations.
3. Troubleshoot hardware & network problems.

PROGRAM REQUIREMENTS

Subject #	Title	Units
Major Core Courses		
CIS 5	Introduction to Computer Science	5
or		
CIS 6	Introduction to Computer Programming	5
or		
CIS 7	Control Structures and Objects	4
and		
CIS 52	Cloud Security Fundamentals	3
CIS 53	Intrusion Detection In-Depth: Compliance, Security, Forensics and Troubleshooting	3
CIS 54	IT Security Goals, Strategy, Policy, and Leadership	3
CIS 55	Hacker Techniques, Exploits & Incident Handling	3
CIS 58	Hacker Guard – Baseline Training for IT Administrators and Operations	3
CIS 60	Computer Forensics Fundamentals	3
CIS 72	Systems and Network Administration	3
COPED 469	Occupational Work Experience in Security Administration	3
	Total Units	28-29

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CATALOG CORRECTION, PAGE 298

CORRECTIONS HIGHLIGHTED BELOW IN YELLOW

LIBERAL ARTS: ARTS AND HUMANITIES

ASSOCIATE IN ARTS (AA) DEGREE

Description

The Liberal Arts: Arts and Humanities Associate in Arts degree program is designed for students who wish a broad knowledge of liberal arts and sciences with an area of emphasis in Arts and Humanities. This program is an ideal choice for students planning on transferring to the California State University or University of California as the student can satisfy their general education requirements, plus focus on transferable course work that relates to majors at CSU or UC. Please consult with a counselor for specific information regarding your intended major at the specific colleges/university of your choice.

The courses in this program emphasize the study of cultural, literary, humanistic activities and artistic expression of human beings. Students will evaluate and interpret the ways in which people through the ages in different cultures have responded to themselves and the world around them in artistic and cultural creation. Students will also learn to value aesthetic understanding and incorporate these concepts when constructing value judgments. Courses from Anthropology, Art, Ethnic Studies, English and Foreign Languages, Humanities, Music, and Philosophy are acceptable. Major emphasis is put on the Arts and artistic expression of human beings in this pattern. The AA degree in Liberal Arts: Arts and Humanities will prepare students for majors at four-year institutions in language arts, humanities, fine arts or music, among others.

The Associate in Arts degree in Liberal Arts: Arts and Humanities will be awarded upon satisfactory completion of the Degree course requirements and the General Education requirements. Since the following degree courses appear on the General Education Course List, they may be used to meet both the degree and the General Education requirements, provided that the total is 37 or more units. A course may be used one time for the degree and one time only for the General Education requirements, even though the course may be listed in several category areas.

- Choose either CSUGE or IGETC for the General Education pattern related to your educational goal.
- Complete requirements in Computer Literacy and Ethnic Studies (see catalog for details).
- Complete 18 units from the program requirements. (Note: These courses may also be counted toward a GE area; those with an (*) are listed in more than one area but may not be counted in more than one area.)
- All courses listed in the program requirements transfer to CSU. Many courses are also transferable to UC. Refer to www.ASSIST.org for transfer details or see a counselor for additional details.

Program Learning Outcomes

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

1. Describe the connections between specific factors (i.e., politics, religion, science, etc.) of historical periods and the artistic styles that emerged from those historical periods in essays and/or oral presentation. Use and interpret formulas, graphs, and tables.
2. Critically analyze artistic styles and ideologies in essays, oral presentations and/or individual portfolio reviews.
3. Demonstrate cultural awareness, personal responsibility, and ethical behavior within a diverse society in their communication via essays, performance and/or group critiques.

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Program Requirements

Major Elective Courses		
Group A: Arts	Select a minimum of 9 units from at least two disciplines from the following:	
ART 1	Introduction to Art History	3
ART 4	History of Modern Art (1800 to Present)	3
ART 9	History of World Ceramics: Past and Present	3
ART 12	World Art: Visual and Historical Analysis	3
ART 15	California Art History, 1850-2000	3
ASAME 1*	Art and Culture of Asia	3
MUSIC 9	Introduction to World Music	3
MUSIC 10	Music Appreciation	3
MUSIC 11	African American Music	3
MUSIC 15A	Jazz, Blues, and Popular Music in the American Culture	3
MUSIC 19	Music of America's Musical Theater	3
Group B: Humanities	Select a minimum of 9 units from at least three disciplines from the following:	
AFRAM 25*	Social Psychology	3
AFRAM 27*	Lifespan Human Development	3
AFRAM 28**	Survey of Third World through Films	3
AFRAM 41	African-American Writers (Fiction)	3
AFRAM 42	African-American Writers (Non-Fiction)	3
AFRAM 43	African-American Writers (Poetry)	3
AFRAM 45	Religion and the African-American Church in America	3
ANTHR 7*	Magic, Religion and Witchcraft	3
ENGL 1B*	Composition and Reading	4
HUMAN 2	Human Values	3
LANHT 55	History of Gardens and Gardening	3
M/LAT 28**	Survey of Third World through Films	3
M/LAT 30A	Survey of Latin-American Films	3
M/LAT 30B	Survey of Latin-American Films	3
PHIL 1	Introduction to Philosophy	3
PHIL 2	Social and Political Philosophy	3
PHIL 10	Logic	3
SPAN 1A	Elementary Spanish	3
SPAN 1B	Elementary Spanish	3
	*These courses are listed in more than one GE Area but may not be counted in more than one GE Area.	
	**AFRAM 28 is the same as M/LAT 28. Maximum credit for one course	
	Note: At least 12 units of the 60 units required for the Associate Degree must be completed at Merritt College.	
	Major Requirements	18
	Total Units	60