

# Laney College

## African American Studies

### Overview

College	Laney - Humanities, Social Sciences
Originator	Dana Grisby
Award Type	A.A. Degree

### Codes and Dates

State Approval Date	4/09/2018
Curriculum Committee Approval Date	10/18/2013
Board of Trustees Date	12/10/2013
Current Effective Date	6/18/2018
Top Code	2203.00 - Ethnic Studies

### Description

The African American Studies program prepares students with the comprehensive knowledge base, critical skills and social consciousness necessary to function as effective leaders in an increasingly globalized and diverse society. Our program is grounded in the decolonization and liberation projects of African Americans and their allies in the civil rights, gender, and sexual liberation movements of the 1960s that continue through the present in new forms that address new conditions. The aim of African American Studies is to support students in developing a critical consciousness and an understanding of social, political, cultural, and economic forces that have shaped the histories and current day realities of African Americans. Our studies are centered in the principles of social justice and self-determination of oppressed communities. This program utilizes the knowledges, epistemologies, and critical thinking produced by racially and sexually oppressed subjects, and we endeavor to examine the entangled intersectionality of racialized sexuality, gender, and class in complex socio-historical processes.

### Career Opportunities

Health care, social work, mental health, law, historical societies, education, non-profit organizations, community organizing.

### Program Learning Outcomes

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

1. Research: Evaluate the development of the field of African American Studies, and utilize research methodologies and scholarship within the field to produce research papers.
2. Analysis of issues: Effectively employ social science methodologies in the analysis of issues related to African Americans.
3. Identify and describe the general history of African American people in the U.S. and the Diaspora (i.e., West Africa, Middle passage, North American slavery, Civil War, Reconstruction, Jim Crow Era, and Civil Rights Movement).

### Degree Requirements:

<b>Core Courses (15 units):</b>		<b>Credit Hours:</b> (0 Required)
AFRAM 001	Introduction to African American Studies	3
AFRAM 005	The African American Family in the United States	3
AFRAM 014A	Social Psychology of African American Male/Female Relationships	3
AFRAM 030	African American History: Africa to 1865	3
AFRAM 031	African American History: 1865-1945	3
<b>Electives (6 units):</b>		<b>Credit Hours:</b> (0 Required)
AFRAM 002	Black Economics	3
AFRAM 008	African-American Politics	3
AFRAM 011	Perceptions of the African American Male in America	3

AFRAM 012	Psychology of African Americans	3
AFRAM 016	The Prison Industrial Complex: African American Incarceration	3
AFRAM 023	Perceptions of African American Women	3
AFRAM 026	African American Culture: Black Music, Art, and Literature	3
AFRAM 029	African American Experience Through Films	3
AFRAM 032	African American History: 1945 to the Present	3
AFRAM 038	Environmental Racism and Justice	3
AFRAM 045	Religion and the African American Church in America	3
AFRAM 035 or	Women of Color	3
ASAME 035 or	Women of Color	3
M/LAT 035 or	Women of Color	3
NATAM 035	Women of Color	3

**Credit Hours:** (0 Required)

Total Major Units 21

**Credit Hours:** (0 Required)

General Education 19

**Credit Hours:** (0 Required)

Electives to meet 60 units

**Credit Hours:** (0 Required)

Total Units 60

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# Merritt College

## Business Administration 2.0

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### Overview

College  
Originator  
Award Type

Merritt - Division II  
Shahbaz Shahbazi  
AS-T Degree

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### Description

The Associate in Science Business Administration 2.0 Transfer Degree (AS-T) program allows students to fulfill lower division major requirements at a community college and guarantees transfer with junior status to the California State University (CSU) system. Students who complete an ADT and transfer to a similar major at a CSU are guaranteed a pathway to finish their baccalaureate degrees in 60 semester units.

This AS-T degree program requires students to meet the following requirements:

1. Completion of 60 semester units that are eligible for transfer to the CSU system, including the following:
    - a. The Intersegmental GE Transfer Curriculum (IGETC) or the California State University GE-Breadth Requirements (CSU GE-Breadth).
    - b. A minimum of 18 semester units in a major or area of emphasis, as determined by the community college district.
    - c. A minimum of 12 semester units earned at Merritt College.
  2. Obtainment of a minimum grade point average of 2.0.
  3. Obtainment of a minimum grade of "C" (or "P") for each course in the major.
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### Career Opportunities

Careers in: Administrative Services Budgeting Human Resources Purchasing Sales Supervising

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### Program Learning Outcomes

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

1. Pursue and evaluate knowledge through the skills of inquiry, research, critical thinking and problem solving.
  2. Identify and demonstrate accepted practices that show cultural sensitivity.
  3. Communicate effectively in both speech and writing.
  4. Write clear, concise and structured business plans with supportive documentation and data.
  5. Understand and appreciate diversity and develop a worldview informed by multicultural and global perspectives,
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### Degree Requirements:

#### Program Requirements

**Credit Hours:** (8 Required)

#### Major Core Courses:

BUS 001A	Financial Accounting	4
BUS 001B	Managerial Accounting	4

BUS 002	Introduction to Business Law	3
ECON 001	Principles of Economics (Macro-Economics)	3
ECON 002	Principles of Economics (Micro-Economics)	3
MATH 013	Introduction to Statistics	4
MATH 016A	Calculus for Business and Life/Social Sciences	3
BUS 010	Introduction to Business	3

**Total Units for the Major: 27**

**Credit Hours:**

**Total Units that may be double-counted (The transfer GE Area limits must not be exceeded): 9**

**Credit Hours:**

**General Education (CSU-GE or IGETC) Units: 39 - 37**

**Credit Hours:**

**Elective (CSU Transferable) Units: 4 - 6**

**Credit Hours:**

**Total Degree Units (maximum): 60**

**Credit Hours:**

**Total: 27**

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# College of Alameda

## Business Administration 2.0

### Overview

College	COA - Career and Workforce Education
Originator	Olga Fish
Award Type	AS-T Degree

### Description

The Associate in Science in Business Administration 2.0 for Transfer Degree is designed to prepare students for a seamless transfer with junior status and priority admission to a local CSU campus to a program or major in Business Administration or similar major for completion of a baccalaureate degree. Students are required to complete:

- Completion of 60 semester units or 90 quarter units that are eligible for transfer to the California State University, including both of the following:

(A) The Intersegmental General Education Transfer Curriculum (IGETC) or the California State University General Education – Breadth Requirements.

(B) A minimum of 18 semester units or 27 quarter units in a major or area of emphasis, as determined by the community college district.

- Obtainment of a minimum grade point average of 2.0. Students must earn a C or better in all courses required for the major or area of emphasis.
- No more than 60 semester units are required.

The Associate in Science in Business Administration 2.0 for Transfer Degree will also assist Business Administration major students to transfer to a U.C. or other baccalaureate institutions. Students are advised to consult with a counselor to verify transfer requirements.

### Career Opportunities

An AS-T in Business Administration puts students on the path to career opportunities in: Marketing, sales, accounting, technology, education and upper level management.

### Program Learning Outcomes

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

1. Develop critical thinking skills required for transfer in business administration, accounting, economics, and other related fields.
2. Analyze, organize, and compose various types of written reports in the field of Business Administration.

### Degree Requirements:

<b>Core Courses (17 units)</b>		<b>Credit Hours:</b>	(0 Required)
BUS 001A	Financial Accounting		4
BUS 001B	Managerial Accounting		4
BUS 002	Introduction to Business Law		3
ECON 001	Principles of Economics (Macroeconomics)		3
ECON 002	Principles of Economics (Microeconomics)		3
<b>Select both classes (7 units)</b>		<b>Credit Hours:</b>	(0 Required)
MATH 013	Introduction to Statistics		4

MATH 016A	Calculus for Business & the Life & Social Sciences	3
<b>Required for degree (3 units)</b>		<b>Credit Hours:</b> (0 Required)
BUS 010	Introduction to Business	3
<b>Major units required (including units that can be double-counted)</b>		<b>Credit Hours:</b> (0 Required)
Total Major Units		27
<b>IGETC or CSU GE-Breadth Education Pattern requirement</b>		<b>Credit Hours:</b> (0 Required)
IGETC or CSU GE-Breadth Education Units (9 units may be double-counted)		37 - 39
<b>CSU Transferable Elective courses to meet 60-units</b>		<b>Credit Hours:</b> (0 Required)
CSU Transferable Elective courses to meet 60-units as needed		3 - 5
<b>Total Units required for degree</b>		<b>Credit Hours:</b> (60 Required)
		<b>Total: 60</b>

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# Merritt College

## Business Administration

### Overview

College	Merritt - Division II
Originator	Anita M Black
Award Type	AS-T Degree

### Description

The Associate in Science Degree in Business Administration for Transfer is designed to prepare students for a seamless transfer with junior status to a CSU campus, into a program or major in Business Administration or similar major for completion of a baccalaureate degree. Students are required to complete:

(1) a minimum of 28 semester units in the major with a grade of C or better while maintaining a minimum grade point average (GPA) of at least 2.0 in all CSU transferable coursework.

(2) 60 semester CSU-transferable units using the California State University-General Education-Breadth pattern (CSU-GE Breadth); OR the Intersegmental General Education Transfer Curriculum (IGETC) pattern.

Students planning to transfer to a four-year institution are advised to consult a counselor for selection of appropriate business and general education courses. Students must maintain a minimum 2.0 GPA, including grades of C or higher in each course taken to fulfill the major.

### Career Opportunities

Various business careers depending on the students area of specialization--marketing, management, business, etc.

### Program Learning Outcomes

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

1. Write clear, concise and structured business plans with supportive documentation and data.
2. Identify and demonstrate accepted practices that show cultural sensitivity.
3. Pursue and evaluate knowledge through the skills of inquiry, research, critical thinking and problem solving.
4. Communicate effectively in both speech and writing.
5. Understand and appreciate diversity and develop a worldview informed by multicultural and global perspectives,

### Degree Requirements:

		<b>Credit Hours:</b> (19 Required)
BUS 001A	Financial Accounting	4
BUS 001B	Managerial Accounting	4
BUS 002	Introduction to Business Law	3
CIS 001	Introduction to Computer Information Systems	4
ECON 001	Principles of Economics (Macro-Economics)	3
ECON 002	Principles of Economics (Micro-Economics)	3
MATH 013	Introduction to Statistics	4
MATH 016A	Calculus for Business and Life/Social Sciences	3



# Merritt College

## Computer Science

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### Overview

College  
Originator  
Award Type

Merritt - Division II  
Courtney Brown  
A.S. Degree

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### 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 [transfer.assist.org](https://transfer.assist.org) can provide additional information about applicable courses for transfer.

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### Career Opportunities

Career opportunities include entry-level positions as Application Software Developers (SOC 15-1132), Computer Systems Analysts (SOC 15-1121), Systems Software Developers (SOC 15-1133), Information Security Analysts (SOC 15-1122), and Network and Computer Systems Administrators (SOC 15-1142).

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### 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.
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## Degree Requirements:

<b>Required Courses</b>	<b>Credit Hours:</b> (31 - 32 Required)
CIS 006 or Introduction to Computer Programming	5
CIS 007 Control Structures and Objects	4
CIS 011 Discrete Structures and Logic	4
CIS 033 Software Architectures and Algorithms	4
CIS 078 Digital Architectures for Computation	4
MATH 003A Calculus I	5
MATH 003B Calculus II	5
PHYS 004A General Physics with Calculus	5
<i>MATH 011 accepted as substitute for CIS 011</i>	

<b>Restricted Electives</b>	<b>Credit Hours:</b> (12 - 17 Required)
<i>Select one Group of Concentration Electives from the List Below</i>	

<b>Cybersecurity - Secure Software Development</b>	<b>Credit Hours:</b> (0 Required)
<i>Recommended Sequence of Courses</i>	

CIS 071 Introduction to Information Systems Security	3
CIS 059 Applications in Information Security	3
CIS 056 Secure Coding in Java and .NET	3
CIS 057 Web Application PEN Testing	3

<b>Cybersecurity - DevOps (Dev/Sec/Ops)</b>	<b>Credit Hours:</b> (0 Required)
<i>Recommended Sequence of Courses</i>	

CIS 055 Hacker Techniques, Exploits & Incident Handling	3
CIS 060 Computer Forensics Fundamentals	3
CIS 247 Information Systems Skills Challenge	1
CIS 052 Cloud Security Fundamentals	3
CIS 053 Intrusion Detection In-Depth: Compliance, Security, Forensics and Troubleshooting	3
CIS 178 Build Automation for DevOps & QA	4

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

<b>Blockchain Services and Mobile Applications</b>	<b>Credit Hours:</b> (0 Required)
<i>Recommended Sequence of Courses</i>	

CIS 066 XML Documents and Applications	2
CIS 093 Cross Platform Mobile Application Development	4
CIS 100 Introduction to Blockchain, Cryptocurrencies, and Identity	3
CS 043 High Performance Web Applications and Services	3

<b>DevOps - Software Engineering Automation and Continuous Integration</b>	<b>Credit Hours:</b> (0 Required)
<i>Recommended Sequence of Courses</i>	

CIS 051 Introduction to Information Technology Project Management	4
CS 020 Python Application Programming	3
CS 080 Software Engineering	3
CIS 178 Build Automation for DevOps & QA	4

CIS 179	Agile Software Management and Project Automation	3
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*Completing this elective qualifies you to become a PMI Agile Certified Practitioner (PMI-ACP)*

*<https://www.pmi.org/certifications/types/agile-acp>*

*Exams are administered only to qualified students by Project Management Institute (PMI) <http://pmi.org>*

**High Performance Computing, Data Science, and Artificial Intelligence**      **Credit Hours:** (0 Required)

*Recommended Sequence of Courses*

CIS 098	Database Programming with SQL	4
MATH 003E	Linear Algebra	3
CIS 008	Introduction to Parallel and Cloud Programming	4
CIS 107 and	Administering Cloud Services and Containers	3
CS 060	Applications of Artificial Intelligence and Deep Learning	3

**Swift Software Development**      **Credit Hours:** (0 Required)

*Recommended Sequence of Courses*

CS 025 and	Swift Application Programming	4
CS 026 and	Swift Data Structures and Algorithms	4
CS 027 and	Swift Universal Framework Applications	4
CS 247	Swift Multi-Platform Application Development	3

*CIS 247 SMA requires creation of a software application that runs on at least two (2) of the following platforms: iOS, tvOS, watchOS, or macOS*

**Units that may be double counted for General Education**      **Credit Hours:** (7 Required)

**Local Degree General Education (PCCD GE PATTERN)**      **Credit Hours:** (12 Required)

**Credit Hours:**

**Total: 62.000 - 68.000**

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# Merritt College

## Computer Science

### Overview

College	Merritt - Division II
Originator	Courtney Brown
Award Type	Certificate of Achievement

### Codes and Dates

State Approval Date	10/29/2020
Curriculum Committee Approval Date	5/14/2020
Board of Trustees Date	10/13/2020
Current Effective Date	1/01/2021
Program Control Number	37966
Top Code	0707.00* - Computer Software Development

### Description

Graduates of the two-year 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 two-year 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](http://www.assist.org) can provide additional information about applicable courses for transfer.

### Career Opportunities

Career opportunities include entry-level positions as Application Software Developers (SOC 15-1132), Computer Systems Analysts (SOC 15-1121), Systems Software Developers (SOC 15-1133), Information Security Analysts (SOC 15-1122), and Network and Computer Systems Administrators (SOC 15-1142).

### 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.

### Degree Requirements:

#### Required Courses

##### Program Courses

CIS 006 or	Introduction to Computer Programming	<b>Credit Hours:</b> (31 - 32 Required)	5
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CIS 007	Control Structures and Objects	4
CIS 011	Discrete Structures and Logic	4
CIS 033	Software Architectures and Algorithms	4
CIS 078	Digital Architectures for Computation	4
MATH 003A	Calculus I	5
MATH 003B	Calculus II	5
PHYS 004A	General Physics with Calculus	5

*MATH 011 accepted as a substitute for CIS 011*

### Optional Electives

**Credit Hours:**

*Select an Optional Group of Concentration Electives from the List Below  
Completion of an elective sequence is not required to receive this certificate.*

### Cybersecurity - Secure Software Development

**Credit Hours:** (0 Required)

*Recommended Sequence of Courses*

CIS 071	Introduction to Information Systems Security	3
CIS 059	Applications in Information Security	3
CIS 056	Secure Coding in Java and .NET	3
CIS 057	Web Application PEN Testing	3

### Cybersecurity - DevOps (Dev/Sec/Ops)

**Credit Hours:** (0 Required)

*Recommended Sequence of Courses*

CIS 055	Hacker Techniques, Exploits & Incident Handling	3
CIS 060	Computer Forensics Fundamentals	3
CIS 247	Information Systems Skills Challenge	1
CIS 052	Cloud Security Fundamentals	3
CIS 053	Intrusion Detection In-Depth: Compliance, Security, Forensics and Troubleshooting	3
CIS 178	Build Automation for DevOps & QA	4

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

### Blockchain Services and Mobile Applications

**Credit Hours:** (0 Required)

*Recommended Sequence of Courses*

CIS 066	XML Documents and Applications	2
CIS 093	Cross Platform Mobile Application Development	4
CIS 100	Introduction to Blockchain, Cryptocurrencies, and Identity	3
CS 043	High Performance Web Applications and Services	3

### DevOps - Software Engineering Automation and Continuous Integration

**Credit Hours:** (0 Required)

*Recommended Sequence of Courses*

CIS 051	Introduction to Information Technology Project Management	4
CS 020	Python Application Programming	3
CS 080	Software Engineering	3
CIS 178	Build Automation for DevOps & QA	4
CIS 179	Agile Software Management and Project Automation	3

*Completing this elective qualifies you to become a PMI Agile Certified Practitioner (PMI-ACP) <https://www.pmi.org/certifications/types/agile-acp>*

*Exams are administered only to qualified students by Project Management Institute (PMI) <http://pmi.org>*

**High Performance Computing (HPC), Data Science, and Machine Learning Credit Hours:** (0 Required)*Recommended Sequence of Courses*

CIS 098	Database Programming with SQL	4
MATH 003E	Linear Algebra	3
CIS 008	Introduction to Parallel and Cloud Programming	4
CIS 107	Administering Cloud Services and Containers	3
CS 060	Applications of Artificial Intelligence and Deep Learning	3

**Swift Software Development****Credit Hours:** (0 Required)*Recommended Sequence of Courses*

CS 025 and	Swift Application Programming	4
CS 026 and	Swift Data Structures and Algorithms	4
CS 027 and	Swift Universal Framework Applications	4
CS 247	Swift Multi-Platform Application Development	1 - 4

*CIS 247 SMA requires creation of a software application that runs on at least two (2) of the following platforms: iOS, tvOS, watchOS, or macOS*

**Total: 31.000 - 32.000**

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# Merritt College

## Conservation and Resource Management

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### Overview

College	Merritt - Division II
Originator	Benjamin Nelson
Award Type	Certificate of Achievement

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### Codes and Dates

State Approval Date	2/20/2021
Curriculum Committee Approval Date	11/12/2020
Board of Trustees Date	1/19/2021
Current Effective Date	8/01/2021
Program Control Number	38648
Top Code	0115.00* - Natural Resources

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### 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.
  - Prepare for the following careers: Environmental educator, environmental consultant, habitat restoration technician, watershed analyst, parks maintenance technician, ranger, naturalist, ecologist.
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### Career Opportunities

Career opportunities may include: Biological scientists and technicians, conservation scientists and technicians, environmental science and protection technicians, environmental scientists and specialists, fish and game wardens, forest and conservation technicians and workers, foresters, geographers, hydrologists, museum conservators and technicians, natural science managers, soil and plant scientists, and zoologists and wildlife biologists.

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### 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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### Degree Requirements:

#### Major Core Courses

BIOL 015 Environmental Biology

**Credit Hours:** (25 Required)

3

ENVMT 001	Environmental Careers	1
ENVMT 002	Introduction to Sustainable Environmental Systems	4
ENVMT 012 or	Environmental Racism and Justice	3
AFRAM 038	Environmental Racism and Justice	3
ENVMT 055	Principles of Conservation and Land Management	3
ENVMT 056	Management of Public Parks and Natural Resources	3
ENVMT 057	Park Operations Practices and Skills	4
ENVMT 476F	Occupational Work Experience in Environmental Management	3
GEOL 021	Bay Area Field Studies	1

**Major Elective Courses****Credit Hours:** (2 Required)*Select one course for a minimum of 2 units.*

ENVMT 008	Introduction to Outdoor Education	3
ENVMT 014	Environmental Impact Reports	2
ENVMT 039C	Introduction to Geographical Information Systems	4
ENVMT 044	Introduction to Creek and Watershed Restoration: General Aspects	3
LANHT 081	Arborist Equipment Fundamentals	2

**Interdisciplinary Elective Courses****Credit Hours:** (2 Required)*Select any combination of courses for a minimum of 2 units.*

ART 166	Beginning Botanical Drawing	2
BIOL 005	Botany	4
BIOL 009	Marine Biology	4
BIOL 029	Introduction to Biodiversity	4
BIOL 060A	Natural History of the Bay Area: The Local Parks	0.5 - 3
BIOL 060B	Natural History of the Bay Area: Mt. Diablo State Park	0.5 - 3
BIOL 060C	Natural History of the Bay Area: Herpetology	2
BIOL 061E	Natural History of the Tide Pools of the Greater Bay Area	0.5
BIOL 061H	Natural History of the Bay Area: Butterflies and Moths	2
BIOL 061I	Natural History of the Bay Area: Bryophytes	2
BIOL 061K	Natural History of the Bay Area: Lichens	2
BIOL 062S	Natural History of the Islands of California	2
BIOL 080A	Raptors of Central California and the Bay Area	0.5 - 2
BIOL 080B	Bird Songing: The Ecology of Bird Songs and Identification by Ear	0.5 - 2
BIOL 080C	Fundamentals of Ornithology and Birding in Central California/Bay Area	0.5 - 2
GEOG 001	Physical Geography	3
GEOL 001	Introduction to Physical Geology	4
GEOL 012	Environmental Geology	3
LANHT 002	Plant Materials: Tree ID and Culture with Lab (Day)	3
LANHT 002E	Plant Materials: Tree ID and Culture (Evening)	3
LANHT 005A	Plant Materials: Fall Native Plant ID and Culture with Lab (Day)	3
LANHT 005B	Plant Materials: Spring Native Plant ID and Culture with Lab (Day)	3
LANHT 005EA	Plant Materials: Fall Native Plant ID and Culture (Evening)	3
LANHT 005EB	Plant Materials: Spring Native Plant ID and Culture (Evening)	3

LANHT 010	Insect Pests	3
LANHT 016	Soil Management	3
LANHT 023	Plant Terminology	2.5
LANHT 045A	Mushroom Cultivation I	2
LANHT 050	Plant Taxonomy	3
LANHT 053	Alpines Lab	1
NATAM 076E	California Indian Ecology on the Central Coast	1.5

**Total: 29**

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# College of Alameda

## General Chemistry

### Overview

College  
Originator  
Award Type

COA - Science, Technology, Engineering, Art, and Mathematics  
Eric Peter Olds  
Certificate of Achievement

### Description

**Why Study Chemistry?** The study of chemistry helps you understand the fundamentals controlling the interactions of elements and molecules which form the basis for our world and the universe. You will learn about the chemical aspects of everyday life enabling you to understand the chemical foundations of the environment, energy, disease (causes and prevention), and the chemical basis of nutrition. Knowledge of the discipline enables you to practice the protocols and techniques for working safely with chemicals. Modern civilization is based on chemistry and its effects upon the environment and ourselves. Some of the consequences are considered better than others, and studying chemistry allows us to search for alternatives that may be practical or feasible.

The Certificate of Achievement in General Chemistry is designed for students who want to complete the requirements for employment in chemical-related fields, as well as for students who want to complete units required for a B.A. in Chemistry at a four-year institution.

### Career Opportunities

Community college chemistry lab technicians, university entry-level lab technicians, lab support for commercial enterprises in related fields that require chemical lab technician expertise, such as refineries, environmental assessments, geochemistry, etc.

### Program Learning Outcomes

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

1. Demonstrate understanding of chemical processes to solve real-world problems
2. Collect and interpret analytical data using techniques in general chemistry.
3. Demonstrate the ability to perform basic calculations related to preparation of solutions and quantitative and qualitative analyses commonly used in experiments in chemistry.

### Degree Requirements:

#### Required courses: 14 units

**Credit Hours:** (14 Required)

CHEM 030A	Introductory General Chemistry	4
CHEM 001A	General Chemistry	5
CHEM 001B	General Chemistry	5

#### Select one of the following courses: 5 units

**Credit Hours:** (5 Required)

PHYS 004A	General Physics with Calculus	5
PHYS 004B	General Physics with Calculus	5
MATH 003A	Calculus I	5
MATH 003B	Calculus II	5

**Total units required for certificate: 19 units**

**Credit Hours:**



# College of Alameda

## General Chemistry

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### Overview

College  
Originator  
Award Type

COA - Science, Technology, Engineering, Art, and Mathematics  
Eric Peter Olds  
Certificate of Achievement

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### Description

**Why Study Chemistry?** The study of chemistry helps you understand the fundamentals controlling the interactions of elements and molecules which form the basis for our world and the universe. You will learn about the chemical aspects of everyday life enabling you to understand the chemical foundations of the environment, energy, disease (causes and prevention), and the chemical basis of nutrition. Knowledge of the discipline enables you to practice the protocols and techniques for working safely with chemicals. Modern civilization is based on chemistry and its effects upon the environment and ourselves. Some of the consequences are considered better than others, and studying chemistry allows us to search for alternatives that may be practical or feasible.

The Certificate of Achievement in General Chemistry is designed for students who want to complete the requirements for employment in chemical-related fields, as well as for students who want to complete units required for a B.A. in Chemistry at a four-year institution.

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### Career Opportunities

Community college chemistry lab technicians, university entry-level lab technicians, lab support for commercial enterprises in related fields that require chemical lab technician expertise, such as refineries, environmental assessments, geochemistry, etc.

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### Program Learning Outcomes

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

1. Demonstrate understanding of chemical processes to solve real-world problems
  2. Collect and interpret analytical data using techniques in general chemistry.
  3. Demonstrate the ability to perform basic calculations related to preparation of solutions and quantitative and qualitative analyses commonly used in experiments in chemistry.
- 

### Degree Requirements:

#### Required courses: 14 units

**Credit Hours:** (14 Required)

CHEM 030A	Introductory General Chemistry	4
CHEM 001A	General Chemistry	5
CHEM 001B	General Chemistry	5

#### Select one of the following courses: 5 units

**Credit Hours:** (5 Required)

PHYS 004A	General Physics with Calculus	5
PHYS 004B	General Physics with Calculus	5
MATH 003A	Calculus I	5
MATH 003B	Calculus II	5

**Total units required for certificate: 19 units**

**Credit Hours:**



# Merritt College

## Healthcare Interpreter

### Overview

College  
Originator  
Award Type

Merritt - Division III  
Storee Powell  
Certificate of Proficiency

### Description

The Healthcare Interpreter program provides training for bilingual individuals to provide effective healthcare interpreting services. Students completing this certificate will become integral members of the healthcare team in bridging the language and cultural gap between clients and providers. A Certificate of Proficiency will be awarded upon satisfactory completion of the courses specified below. The Certificate of Proficiency is not indicated on the student's transcript.

### Degree Requirements:

<b>FIRST SEMESTER (Summer Session)</b>		<b>Credit Hours:</b>	(0 Required)
HLTOC 210	Survey of Healthcare Interpreting		0
<b>SECOND SEMESTER</b>		<b>Credit Hours:</b>	(3 Required)
HLTOC 211	Interpreting in Health Care I		3
<b>THIRD SEMESTER</b>		<b>Credit Hours:</b>	(8 Required)
HLTOC 212	Interpreting in Health Care II		6
HLTOC 213	Interpreting in Health Care III		0.5
HLTOC 214	Occupational Work Experience in Healthcare Interpreting		2
		<b>Total:</b>	<b>11.5</b>

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# College of Alameda

## Mathematics

### Overview

College	COA - Science, Technology, Engineering, Art, and Mathematics
Originator	Vanson Nguyen
Award Type	A.S. Degree

### Description

The AS degree in Mathematics will be awarded upon completion of the major course requirements listed below and the General Education requirements for the Associate in Science Degree listed in the Degrees, Programs & Transfer Requirements section of this Catalog.

### Career Opportunities

Transfer to 4-year university Tutor Mechanical Designer. Information Technology (IT) Manager. Linux System Administrator. Help Desk Technician. Executive Director. Executive Assistant. Plumber.

### Program Learning Outcomes

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

1. Use quantitative reasoning to solve every day mathematical problems in the workplace and in the home.
2. Read, write, and critique technical writings and analytical arguments.
3. Convey and interpret information through visual representations.

### Degree Requirements:

<b>Degree Major Requirements</b>	<b>Credit Hours:</b> (21 Required)
MATH 003A      Calculus I	5
MATH 003B      Calculus II	5
MATH 003C      Calculus III	5
MATH 003E      Linear Algebra	3
MATH 003F      Differential Equations	3
<b>Select one course (4 units) from the following</b>	<b>Credit Hours:</b> (4 Required)
MATH 012      Symbolic Logic	4
MATH 013      Introduction to Statistics	4
MATH 011      Discrete Mathematics	4
<b>G.E. Units Required</b>	<b>Credit Hours:</b> (35 Required)
	<b>Total: 60</b>

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# College of Alameda

## Mathematics

### Overview

College	COA - Science, Technology, Engineering, Art, and Mathematics
Originator	Vanson Nguyen
Award Type	A.S. Degree

### Description

The AS degree in Mathematics will be awarded upon completion of the major course requirements listed below and the General Education requirements for the Associate in Science Degree listed in the Degrees, Programs & Transfer Requirements section of this Catalog.

### Career Opportunities

Transfer to 4-year university Tutor Mechanical Designer. Information Technology (IT) Manager. Linux System Administrator. Help Desk Technician. Executive Director. Executive Assistant. Plumber.

### Program Learning Outcomes

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

1. Use quantitative reasoning to solve every day mathematical problems in the workplace and in the home.
2. Read, write, and critique technical writings and analytical arguments.
3. Convey and interpret information through visual representations.

### Degree Requirements:

<b>Degree Major Requirements</b>	<b>Credit Hours:</b> (21 Required)
MATH 003A      Calculus I	5
MATH 003B      Calculus II	5
MATH 003C      Calculus III	5
MATH 003E      Linear Algebra	3
MATH 003F      Differential Equations	3
<b>Select one course (4 units) from the following</b>	<b>Credit Hours:</b> (4 Required)
MATH 012      Symbolic Logic	4
MATH 013      Introduction to Statistics	4
MATH 011      Discrete Mathematics	4
<b>G.E. Units Required</b>	<b>Credit Hours:</b> (35 Required)
	<b>Total: 60</b>

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# Merritt College

## Natural History and Resources

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### Overview

College	Merritt - Division II
Originator	Benjamin Nelson
Award Type	Certificate of Achievement

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### Codes and Dates

State Approval Date	2/20/2021
Curriculum Committee Approval Date	11/12/2020
Board of Trustees Date	1/19/2021
Current Effective Date	8/01/2021
Program Control Number	38649
Top Code	0115.00* - Natural Resources

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### Description

The Natural History and 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.

Students in the Natural History and Resources program 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.
  - Prepare for the following careers: Environmental educator, environmental consultant, habitat restoration technician, parks maintenance technician, ranger, biologist, curatorial assistant, or collections manager.
- 

### Career Opportunities

Career opportunities may include: Biological scientists and technicians, conservation scientists and technicians, environmental science and protection technicians, environmental scientists and specialists, fish and game wardens, forest and conservation technicians and workers, foresters, geographers, hydrologists, museum conservators and technicians, natural science managers, soil and plant scientists, and zoologists and wildlife biologists.

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### 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.
- 

### Degree Requirements:

#### Major Core Courses

BIOL 029 Introduction to Biodiversity

**Credit Hours:** (15 Required)

4

ENVMT 001	Environmental Careers	1
ENVMT 002	Introduction to Sustainable Environmental Systems	4
ENVMT 012 or	Environmental Racism and Justice	3
AFRAM 038	Environmental Racism and Justice	3
GEOG 001	Physical Geography	3

**Major Elective Courses****Credit Hours:** (9 Required)*Select any combination of courses for a minimum of 9 units.*

ART 166	Beginning Botanical Drawing	2
BIOL 005	Botany	4
BIOL 009	Marine Biology	4
BIOL 015	Environmental Biology	3
BIOL 060A	Natural History of the Bay Area: The Local Parks	0.5 - 3
BIOL 060B	Natural History of the Bay Area: Mt. Diablo State Park	0.5 - 3
BIOL 060C	Natural History of the Bay Area: Herpetology	2
BIOL 061E	Natural History of the Tide Pools of the Greater Bay Area	0.5
BIOL 061H	Natural History of the Bay Area: Butterflies and Moths	2
BIOL 061I	Natural History of the Bay Area: Bryophytes	2
BIOL 061K	Natural History of the Bay Area: Lichens	2
BIOL 062S	Natural History of the Islands of California	2
BIOL 080A	Raptors of Central California and the Bay Area	0.5 - 2
BIOL 080B	Bird Songing: The Ecology of Bird Songs and Identification by Ear	0.5 - 2
BIOL 080C	Fundamentals of Ornithology and Birding in Central California/Bay Area	0.5 - 2
GEOG 001	Introduction to Physical Geology	4
GEOG 012	Environmental Geology	3
LANHT 002	Plant Materials: Tree ID and Culture with Lab (Day)	3
LANHT 002E	Plant Materials: Tree ID and Culture (Evening)	3
LANHT 005A	Plant Materials: Fall Native Plant ID and Culture with Lab (Day)	3
LANHT 005B	Plant Materials: Spring Native Plant ID and Culture with Lab (Day)	3
LANHT 005EA	Plant Materials: Fall Native Plant ID and Culture (Evening)	3
LANHT 005EB	Plant Materials: Spring Native Plant ID and Culture (Evening)	3
LANHT 010	Insect Pests	3
LANHT 016	Soil Management	3
LANHT 023	Plant Terminology	2.5
LANHT 050	Plant Taxonomy	3
NATAM 076E	California Indian Ecology on the Central Coast	1.5

**Interdisciplinary Elective Courses****Credit Hours:** (2 Required)*Select any combination of courses for a minimum of 2 units.*

ENVMT 005	Bay Area Food Culture	3
ENVMT 008	Introduction to Outdoor Education	3
ENVMT 011	Sustainable Urban and Regional Planning	3
ENVMT 014	Environmental Impact Reports	2
ENVMT 035	Introduction to Urban Agroecology	3

ENVMT 044	Introduction to Creek and Watershed Restoration: General Aspects	3
ENVMT 055	Principles of Conservation and Land Management	3
ENVMT 056	Management of Public Parks and Natural Resources	3
ENVMT 057	Park Operations Practices and Skills	4
ENVMT 476F	Occupational Work Experience in Environmental Management	1 - 4
GEO 021	Bay Area Field Studies	1 - 2
LANHT 045A	Mushroom Cultivation I	2
LANHT 081	Arborist Equipment Fundamentals	2

**Total: 26**

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# Merritt College

## Online Teaching and Course Design

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### Overview

College  
Originator  
Award Type

Merritt - Division I  
Xavier Gomez  
Certificate of Proficiency

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### Description

A Certificate of Proficiency in Online Teaching and Course Design will help students to develop competencies for online teaching and learning through evidence-based practices, current educational technology adoption and development, course facilitation techniques using a learning management system (LMS), and student-centered design as informed by principles of Universal Design for Learning, the California Virtual Campus - Online Education Initiative (CVC-OEI) Rubric, and the Peralta Community College District Online Equity Rubric.

The Certificate of Proficiency will be awarded at the successful completion of four required courses and one of four electives for a total of 14-15 units.

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### Career Opportunities

Career and employment opportunities in the field of online teaching and course design include teaching, as the certificate of achievement helps educators think deeply about the connection between pedagogy, technology and content knowledge. Some students go on to teach at online schools or academies as a supplement to their face-to-face teaching. OTCD students also become technology integration specialists, whose job duties include developing curriculum and assessments, co-teaching, staff-development, and school planning and visioning. Others become Educational Technology Consultants. OTCD tech consultants may run online training, develop curriculum and assist with educational technology policies and procedure development. Instructional designers are often in charge of designing online or hybrid learning experiences. They may work within a learning management system (such as Canvas) or create stand-alone instructional resources. Instructional designers often work alongside faculty members at the community college or university level to develop online and hybrid courses.

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### Program Learning Outcomes

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

1. Create interactive, online assignments that will promote critical thinking and active learning.
  2. Create a variety of online course modules appropriate for a given course.
  3. Demonstrate understanding of universal design and accessibility across the digital divide, as well as Section 508 accessibility.
- 

### Degree Requirements:

#### Program Requirements

#### Credit Hours:

#### Major Core Courses:

**Credit Hours:** (12 Required)

EDT 001	Introduction to Online Teaching	3
EDT 002	Introduction to Using Canvas	3
EDT 004	Designing Curriculum for Online Instruction	3
EDT 005	Creating Multimedia for Online Classes	3

**Major Elective Courses****Credit Hours:** (2 - 3 Required)*Select 2-3 units from the following:*

EDT 003	Introduction to Hybrid Teaching	3
EDT 006	Providing Support for Online Learners	2
EDT 007	Building Open Educational Resources	3
EDT 008	Applying the CVC-OEI Course Design Rubric	3

**Total: 14.000 - 15.000**

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# Merritt College

## Urban Agroecology

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### Overview

College	Merritt - Division II
Originator	Benjamin Nelson
Award Type	Certificate of Achievement

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### Codes and Dates

State Approval Date	2/20/2021
Curriculum Committee Approval Date	11/12/2020
Board of Trustees Date	1/19/2021
Current Effective Date	8/01/2021
Program Control Number	38650
Top Code	0199.00* - Other Agriculture and Natural Resources

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### Description

The Urban Agroecology Certificate of Achievement 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.
  - Get hands-on training to work for the following: Small-scale farm enterprises, non-profit organizations relating to food and public health, food policy organizations.
- 

### Career Opportunities

Career opportunities may include: Agriculture and food science technicians; farming, fishing, and forestry supervisors; food scientists and technologists; greenhouse and nursery workers; and farm workers and laborers.

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### 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.
- 

### Degree Requirements:

Major Core Courses		Credit Hours:	(18 Required)
ENVMT 001	Environmental Careers		1
ENVMT 002	Introduction to Sustainable Environmental Systems		4

ENVMT 003	Social Issues in Agriculture	3
ENVMT 005	Bay Area Food Culture	3
ENVMT 012 or	Environmental Racism and Justice	3
AFRAM 038	Environmental Racism and Justice	3
ENVMT 035	Introduction to Urban Agroecology	3

**Major Elective Courses****Credit Hours:** (5 Required)*Select any combination of courses for a minimum of 5 units.*

ENVMT 016	Introduction to Healthy Community Systems	3
LANHT 028A	Permaculture Design I	3
LANHT 045A	Mushroom Cultivation I	2
LANHT 076	Edible Landscaping	3
LANHT 077	Crop Production, Marketing and Sales	1.5
NUTR 031	Food-Production Systems	3

**Interdisciplinary Elective Courses****Credit Hours:** (2 Required)*Select any combination of courses for a minimum of 2 units.*

BIOL 005	Botany	4
BIOL 015	Environmental Biology	3
BIOL 029	Introduction to Biodiversity	4
BIOL 061H	Natural History of the Bay Area: Butterflies and Moths	2
ENVMT 008	Introduction to Outdoor Education	3
ENVMT 014	Environmental Impact Reports	2
ENVMT 039C	Introduction to Geographical Information Systems	4
ENVMT 044	Introduction to Creek and Watershed Restoration: General Aspects	3
ENVMT 055	Principles of Conservation and Land Management	3
ENVMT 056	Management of Public Parks and Natural Resources	3
ENVMT 057	Park Operations Practices and Skills	4
ENVMT 476F	Occupational Work Experience in Environmental Management	1 - 4
GEOG 001	Physical Geography	3
GEOL 021	Bay Area Field Studies	1 - 2
LANHT 002	Plant Materials: Tree ID and Culture with Lab (Day)	3
LANHT 002E	Plant Materials: Tree ID and Culture (Evening)	3
LANHT 005A	Plant Materials: Fall Native Plant ID and Culture with Lab (Day)	3
LANHT 005B	Plant Materials: Spring Native Plant ID and Culture with Lab (Day)	3
LANHT 005EA	Plant Materials: Fall Native Plant ID and Culture (Evening)	3
LANHT 005EB	Plant Materials: Spring Native Plant ID and Culture (Evening)	3
LANHT 010	Insect Pests	3
LANHT 016	Soil Management	3
LANHT 023	Plant Terminology	2.5
LANHT 045A	Mushroom Cultivation I	2
LANHT 050	Plant Taxonomy	3
LANHT 081	Arborist Equipment Fundamentals	2
NATAM 076E	California Indian Ecology on the Central Coast	1.5



# Laney College

## Water Efficiency Management

### Overview

College	Laney - Community Leadership
Originator	Kim Glosson
Award Type	Certificate of Achievement

### Codes and Dates

State Approval Date	2/26/2019
Curriculum Committee Approval Date	10/05/2018
Board of Trustees Date	12/11/2018
Program Control Number	37475
Top Code	0599.00* - Other Business and Management

### Description

The Water Efficiency Management certificate prepares students for mid-level management or promotional opportunities in the water industry. The course content focuses on managerial or leadership to ensure high quality drinking water, public and environment safety through efficiency and conservation. Those already employed in public works, construction, landscaping, municipal administration, water distribution/treatment, or facilities oversight and planning are encouraged to complete this certificate to complement their knowledge and potentially increase employability, wages, and promotion opportunities.

### Career Opportunities

After completing the program, students may find employment as a specialist in water supply, water efficiency, program conservation, conservation outreach, natural resources, or environmental protection.

### Program Learning Outcomes

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

1. Analyze work related problems to determine the optimal alternative in the decision-making.
2. Develop effective communication and interpersonal skills to serve and interact with diverse clientele.
3. Illustrate basic computer competency to communicate and assist in the decision making and problem solving process.

### Degree Requirements:

Core Courses		Credit Hours:	(12 Required)
BUS 201	Business Communications		3
M/SVN 082	Essentials of Managerial Communications		3
BUS 219 or	Computer Literacy		1
CIS 205	Computer Literacy		1
M/SVN 456I	Occupational Work Experience in Management and Supervision *		4
MATH 220A	Technical Mathematics with Algebra - Part 1 (Lab)		0.5
MATH 220B	Technical Mathematics with Algebra - Part 2 (Lab)		0.5

**Total: 12**

\*: \*Must take for a total of 4 units

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