SANTA MONICA COLLEGE
ACADEMIC
SENATE
1900 Pico Boulevard Santa Monica, CA 90405
310.434.4611

Curriculum Committee Agenda

Wednesday, October 18, 2023, 3:00 p.m.
Drescher Hall, Loft (3rd Floor, Room 300-E)

Guests and members of the public may attend via Zoom:
Join from PC, Mac, Linux, iOS or Android: https://cccconfer.zoom.us/j/96386192571

Or iPhone one-tap (US Toll): +16699006833,96386192571# or 16694449171,96386192571#

Or Telephone:
+1 669 900 6833 (US Toll)
+1 669 444 9171 (US Toll)
+1 346 248 7799 (US Toll)
+1 253 215 8782 (US Toll)
+1 564 217 2000 (US Toll)
+1 646 876 9923 (US Toll)
+1 646 931 3860 (US Toll)
+1 301 715 8592 (US Toll)
+1 312 626 6799 (US Toll)
+1 386 347 5053 (US Toll)
Meeting ID: 963 8619 2571
International numbers available: https://cccconfer.zoom.us/u/abqJVu9Gkv

Or Skype for Business (Lync): SIP:96386192571@lync.zoom.us

Members:

Sal Veas, *Chair*	Susan Caggiano	Aileen Huang	Redelia Shaw
Dione Carter, *Vice Chair*	Javier Cambron	Alex Ibaraki	Scott Silverman
Bren Antrim	Lisa Collins	Sharlene Joachim	Briana Simmons
Jason Beardsley	Rachel Demski	Jutsin Liu (A.S.)	Lydia Strong
Mary Bober	Susan Fila	Jacqueline Monge	Audra Wells
Fariba Bolandhemat	Christina Gabler	Estela Narrie	Associated Students Rep
Walter Butler	Walker Griffy		

Interested Parties:

Stephanie Amerian	Nathaniel Donahue	Cecilia Jeong (A.S.)	Esau Tovar
Clare Battista	Kiersten Elliott	Matt Larcin	Guadalupe Salgado
Maria Bonin	Tracie Hunter	Stacy Neal	Olivia Vallejo
Department Chairs	Maral Hyeler	Patricia Ramos	Tammara Whitaker
Nick Chambers			

Ex-Officio Members:
Jamar London

(Information items are listed numerically; action items are listed alphabetically)

I. Call to Order and Approval of Agenda
II. Public Comments *(Two minutes is allotted to any member of the public who wishes to address the Committee.)*
III. Announcements
IV. Approval of Minutes 3
V. Chair's Report

VI. Information Items

1. Curriculum Orientation *(continued)*
   - Printed agendas
   - Meetings and related actions
   - Brown Act Requirements
   - Past Practices
2. Annual Curriculum Auto-Approval Certification

(Non-Substantial Changes)

3. COM ST 9 Introduction to Communication Studies (minor updates to course description, SLOs, course objectives, methods of presentation, textbooks, assignments, DE application)
4. COM ST 14 Oral Interpretation: Performing Literature Across Cultures (minor updates to methods of evaluation, textbooks, DE application)
5. COM ST 310 Organizational and Small Group Communication (minor updates to SLOs, course content, methods of presentation, DE application)

VII. Action Items

(Consent Agenda: Emergency DE to Fully Online and/or Hybrid)

(Courses: New)

(Courses: Distance Education)

(Programs: New)

(Programs: Revisions)

z. Changes to degrees, certificates, and program maps as a result of courses considered on this agenda

VIII. New Business

IX. Old Business

X. Adjournment

Please notify Sal Veas, Dione Carter, and Rachel Demski by email if you are unable to attend this meeting.

The next Curriculum Committee meeting is November 1, 2023.

SANTA MONICA COLLEGE ACADEMIC SENATE
1900 Pico Boulevard Santa Monica, CA 90405
310.434.4611

Curriculum Committee Minutes

Wednesday, October 4, 2023, 3:00 p.m.
Drescher Hall, Loft (3rd Floor, Room 300-E)
Zoom (guests/members of the public)

Members Present:

Sal Veas, *Chair*	Walter Butler	Walker Griffy	Redelia Shaw
Dione Carter, *Vice Chair*	Susan Caggiano	Alex Ibaraki	Scott Silverman
Bren Antrim	Lisa Collins	Sharlene Joachim	Briana Simmons
Jason Beardsley	Rachel Demski	Justin Liu (AS)	Lydia Strong
Mary Bober	Susan Fila	Jacqueline Monge	Audra Wells
Fariba Bolandhemat	Christina Gabler	Estela Narrie	

Members Absent:

Javier Cambron	Aileen Huang*

**Attended via Zoom – members of the committee unable to attend in-person may join as a guest on zoom but cannot move or vote on action items.*

Others Present:

Ashanti Blaize-Hopkins	Matt Larcin	Steven Sedky	Olivia Vallejo
Victoria Charles	Debbie Perret		

(Information items are listed numerically; action items are listed alphabetically)

I. Call to Order and Approval of Agenda
The meeting was called to order at 3:05 pm. Motion to approve the agenda with no revisions.
Motion made by: Scott Silverman; **Seconded by:** Lisa Collins
The motion passed unanimously.

II. Public Comments
None

III. Announcements
Dione Carter announced we received no recommendations from Accreditation, meaning we meet all standards! Congratulations to all who worked on accreditation! A formal report will be sent in February.

IV. Approval of Minutes
Motion to approve the minutes of September 20, 2023 with no revisions.
Motion made by: Christina Gabler; **Seconded by:** Estela Narrie
The motion passed with the following vote: Y: 17; N: 0; A: 1 (Walker Griffy)

V. Chair's Report
Welcome to our new Associated Students Curriculum Committee representative Justin Liu!

VI. Information Items

1. Instructional and Universal Designer Presentation: Matt Larcin

The new Instructional and Universal Designer, Matt Larcin presented his past experience and education, what his role is at the college. The importance of instructional design, creating effective and engaging learning experiences, and ensuring courses are aligned with learning outcomes using the ADDIE model (Analyzing, Design,ing, Developing, Implementing, and Evaluating) was emphasized.

2. Curriculum Institute Recap
   - AB 928 CalGETC
     - General Education – Three Pathways

     AB 928 is the legislation which includes the creation of the CalGETC and has a component requiring CCCs to put students seeking transfer onto an ADT pathway unless they opt-out – counselors are not finding this to be student friendly. The CalGETC goes into effect Fall 2025. Additionally, there will be alignment of the three General Education patterns: the local GE, Bachelor's program GE, and the CalGETC. ICAS has posted the CalGETC standards 1.0.

   - AB 1111 Common Course Numbering

     AB 1111 Common Course Numbering (CCN) legislation requires that all community colleges throughout the state rename/renumber their courses to follow a common course numbering model. ASCCC had a webinar a couple of weeks ago to provide updates and answer questions. Funding was part of the legislation but it's not clear what will be distributed to the colleges for implementation. The priority will be for C-ID courses, then GE courses, but may eventually include CE courses as well. It will be further complicated regarding C-IDs where multiple courses are under a singular C-ID. The CCN will require identical course subject prefix, number, title, description, and requisites; minimum required units; and equivalent minimum required content and objectives.

   - IDEAA/DEIA
     - Chaffey College COR DEIA Guide

     Chaffey College has DEIA principles incorporated into META at their campus to make DEIA part of submitting new and existing curriculum. Incorporating DEIA is a part of SMC – the decision of whether to incorporate questions/prompts in META would need to be authorized by the Curriculum Committee, but we could ask META to update our forms and questions. An example Chaffey gave was instead of asking whether they want to offer a course online, departments are asked why they wouldn't/couldn't offer a course online (as online offerings are more accessible for some students.) For the Curriculum Committee – keep it in mind, consider what a guide for our campus will look like.

3. Curriculum Orientation *(continued)*
   - Printed agendas
   - Meetings and related actions
   - Brown Act Requirements
   - Past Practices

   The Curriculum Orientation will be moved to the October 18, 2023 meeting for time.

(Non-Substantial Changes)

4. COM ST 37 Intercultural Communication
5. COSM 38 Skin Care 3

VII. Action Items

(Courses: Substantial Changes)

a. COM ST 11 Elements of Public Speaking (changed: course description, SLOs, course objectives/ content, methods of presentation, methods of evaluation, textbooks, sample assignments)
   Tabled for additional revisions to SLOs.

b. COSM 48B Make-Up (changed: course name (was Advanced Make-Up), course description, changed prerequisite from COSM 28A to COSM 18, SLOs, course objectives/content, sample assignments)
c. COSM 77 Barbering (changed: course description, changed prerequisite from "Possession of a cosmetology license or Completion of 1,250 hours in barbering coursework, COSM 31A" to

"Completion of a cosmetology program or possession of a cosmetology license or COSM 11A", course content, methods of evaluation)

d. COSM 78 Barbering 2 (changed: course description, hours/units (from 0.5 lecture/1.5 lab/1 unit to 1 lecture/3 lab/2 units), changed prerequisite from "Possession of a cosmetology license or COSM 50A and Completion of 1,250 hours in barbering coursework" to "COSM 11A or Completion of a cosmetology program or possession of a cosmetology license."), SLOS, course objectives, course content, methods of evaluation)

Motion to approve changes to COSM 48B (VII. b.), COSM 77 (VII. c.), and COSM 78 (VII. d.) as a block with an additional revision made to COSM 77 and COSM 78 prior to the meeting – Methods of Evaluation "Class Participation" had an additional note added "in-class practical assignments."
Motion made by: Estela Narrie; **Seconded by:** Scott Silverman
The motion passed unanimously.

Motion to approve change of prerequisite for COSM 48B (VII. b.), COSM 77 (VII. c.), and COSM 78 (VII. d.) as a block with no additional revisions.
Motion made by: Susan Caggiano; **Seconded by:** Lisa Collins
The motion passed unanimously.

(Programs: New)

e. Barbering AS/Certificate of Achievement
Motion to approve Barbering AS/Certificate of Achievement with revision to remove "300 program hours" wording from Required Salon Courses.
Motion made by: Scott Silverman; **Seconded by:** Estela Narrie
The motion passed unanimously.

(Programs: Revisions)

f. Sustainable Materials Management AS/Certificate of Achievement
- Changed program name (was "Recycling and Resource Management"), catalog description

Tabled for additional questions regarding the "RRM" prefix of the courses.

g. Changes to degrees, certificates, and program maps as a result of courses considered on this agenda
Motion to approve changes to degrees, certificates, and program maps as a result of courses considered on this agenda.
Motion made by: Christina Gabler; **Seconded by:** Walker Griffy
The motion passed unanimously.

VIII. New Business

None

IX. Old Business

None

X. Adjournment

Motion to adjourn the meeting at 5:02 pm.
Motion made by: Dione Carter; **Seconded by:** Estela Narrie
The motion passed unanimously.

Emergency DE to Online: COUNSELING - NONCREDIT 901, Transition to College

Units:	0.00
Total Instructional Hours (usually 18 per unit):	36.00
Hours per week (full semester equivalent) in Lecture:	2.00
In-Class Lab:	0.00
Arranged:	0.00
Outside-of-Class Hours:	72.00
Date Submitted:	September 2023
Degree Applicability:	Noncredit

I. **Catalog Description**

This course is designed to assist students in transitioning from noncredit to credit courses. Students will be introduced to higher education in the U.S., as well as study skills to improve time management, goal setting, written and oral communication, and strategies to increase their academic success. This course will focus on college readiness, educational planning and an overview of current college policies, special programs, student support services and community resources. NOTE: Non-native English speakers are recommended to complete ESL 904 or higher prior to taking this course.

II. **Examples of Appropriate Text or Other Required Reading:**

(include all publication dates; for transferable courses at least one text should have been published within the last 7 years)

1. College catalog/schedule of classes will be used as references for the course.

III. **Course Objectives**

Upon completion of this course, the student will be able to:

1. Formulate personal and academic short, intermediate and long-term goals.
2. Describe the college application and registration process.
3. Apply new and improved methods of study, time management and the utilization of learning resources.
4. Design a student educational plan.
5. Identify content in the college catalog and class schedule.
6. Identify the location of at least three SMC support services and/or community resources appropriate to the student's individual needs.
7. Identify basic differences among the segments of the California Higher Education systems as well as higher education in other states.

IV. **Methods of Presentation:**

Observation and Demonstration, Projects, Group Work, Lecture and Discussion, Other Methods: Guest speakers and campus tour/visitation

V. **Course Content**

% of Course	Topic
30.000%	Introduction to higher education in the U.S. and transition to college
20.000%	Goal-setting, time management and study strategies for college success
15.000%	Educational Planning
30.000%	Introduction to student support services, community resources and noncredit to credit transition services
5.000%	Introduction to career and workforce readiness
100.000%	Total

VI. **Methods of Evaluation**

% of Course	Topic
10%	Class Participation: Students must be in attendance and engage in classroom discussion.
20%	In Class Assessment (noncredit)

20%	Projects: Counselor approved comprehensive educational plan.
20%	Quizzes: A total of 2-4 quizzes given throughout the semester.
30%	Written assignments
100%	Total

VII. **Sample Assignments:**

SMC Resources Scavenger Hunt: Sample Assignment #1 SMC RESOURCES SCAVENGER HUNT This activity is to help you learn about the resources that SMC offers to students. You will get into groups of __ and you will go to the main campus to visit different offices and talk to the staff about the services. This can also be conducted as an online scavenger hunt in the case of campus closure. At each location you must take a picture OR bring a brochure/ flyer from the office or screenshot the program/dept website. Below is an example, a list resources/programs you need to visit (in person or remotely) and information you need to find. Don't be afraid to ask questions, and have fun! EXAMPLE: Admissions and Records Location: #12 on SMC Map (by 17th street and Pico) Hours: Monday, 8:30 a.m-4:30 p.m. Tuesday, 8:30 a.m. -6 p.m. Wednesday, 8:30 a.m. - 6 p.m. Thursday, 8:30 a.m. - 4:30 p.m. Friday, 8 a.m. - 12 p.m. Services: Help with applying to SMC, get your records (transcripts), verify enrollment and GPA, and apply for graduation. List Location, Hours and Services for: General Transfer Counseling Center, Financial Aid, Career Services Center, EOPS; CARE, Disabled Student Program and Services (DSPS) and Center for Wellness and Wellbeing.

Learning Styles Inventory: Directions: Circle the letter before the statement that best describes you. If I have to learn how to do something, I learn best when I: (V): Watch someone show me how. (A) Hear someone tell me how. (K) Try to do it myself. When I read, I often find that I: (V): Visualize what I am reading in my mind's eye. (A) Read out loud or hear the words inside my head. (K) Fidget and try to "feel" the content. When asked to give directions, I: (V): See the actual places in my mind as I say them or prefer to draw them. (A) Have no difficulty in giving them verbally. (K) Have to point or move my body as I give them. If I am unsure how to spell (V) Write it in order to determine if it looks right. (A) Spell it out loud in order to determine if it sounds right. (K) Write it in order to determine if it feels right. When I write I: (V) I'm concerned with how neat and well spaced my letters and words appear. (A) Often say the letters and words to myself. (K) Push hard on my part or pencil and can feel the flow of the words. If I had to remember a list of items, I would remember it best if: (V): Wrote them down. (A) Said them over and over to myself. (K) Move around and used my fingers to name each item. I prefer teachers who: (V): Use a board or overhead projector while they lecture. (A) Talk with lots of expression. (K) Use hands-on activities. When trying to concentrate, I have a difficult time when: (V): There is a lot of clutter or movement in the room. (A) There is a lot of noise in the room. (K) I have to sit still for any length of time. When solving a problem I: (V): Write or draw diagrams to see it. (A) Talk myself through it. (K) Use my entire body or move objects to help me think. When given written instructions on how to build something, I: (V) Read them silently and try to visualize how the parts will fit together. (A) Read them out loud and talk to myself as I put the part together. (K) Try to put the parts together first and read later. To keep occupied while waiting, I: (V): Look around, stare, or read. (A) Talk or listen to others. (K) Walk around, manipulate things with my hands, or move/shake my feet as I sit. If I had to verbally describe something to another person, I would: (V): Be brief because I do not like to talk at length. (A) Go into great detail because I like to talk. (K) Gesture and move around while talking. If someone were verbally describing something to another person, I would: (V): Try to visualize what he/she was saying. (A) Enjoy listening but want to interrupt and talk myself. (K) Become bored if her/his description got too long and detailed. When trying to recall names, I remember: (V): Faces but forget names. (A) Names, but forget faces. (K) The situation where I met the person rather than the person's name or face. Scoring instructions: Add the number of responses for each letter and enter the total below. The area with the highest number of responses is your primary mode of learning.

VIII. **Student Learning Outcomes:**

1. Student will demonstrate knowledge of the SMC matriculation process, including Orientation and assessment.
2. Student will develop an educational plan based on short and intermediate term goals identified in the course.
3. Student will be able to identify the location of at least three SMC support services and/or community resources appropriate to his/her individual needs.

COUNS 901 Distance Education Application

- ☑ Fully Online
- ☑ Online/Classroom Hybrid (not a delivery option when campus is closed)

1a. Instructor - Student Interaction:

There will be multiple, frequent, and ongoing communication exchanges between the instructor and each student. The instructor will send out a pre-course "welcome letter" 1-2 weeks before the course begins with information about the course and how students can communicate with the instructor and expectations and parameters for student-teacher communication. The instructor will also provide instructions and support as needed for course navigation in the videoconferencing software (ex: Zoom) and/or in an ongoing Q and A Discussion/Virtual Office where students can ask questions and receive assistance regarding the course. Instructor will provide ongoing and timely feedback to students through one or more of the following methods: private messaging through the LMS inbox, email, chat/text messaging, videoconferencing, telephone, personalized assignment feedback, discussion board postings and virtual office hour appointments. Students will be notified when to expect assignment grading and feedback, and response times for student-initiated questions or comments will be clearly communicated via the course syllabus and in the course introduction module.

1b. Student - Student Interaction:
Students will communicate with their classmates throughout the course regarding course content and everyday life in the LMS and/or in live videoconferencing (Zoom) sessions/breakout rooms. Students will participate in 1-2 asynchronous threaded discussion activities per week. Most discussions will require students to respond to classmates. There will be small group activities/discussions including brainstorm activities and role plays throughout the course. There will be at least one collaborative group presentation/project per term in which students collaborate via Google docs or the LMS groups. Students will be able to communicate with each other informally in a Student Lounge discussion board or a chat room where they are able to communicate with classmates regarding non-course-related topics.

1c. Student - Content Interaction:
Students will interact with course content on a weekly basis through audio/video segments, online lectures, interactive videoconferencing (Zoom) sessions, quizzes, discussions, and/or reflective assignments. Modules will become available on a weekly basis and assignments will be due on a weekly basis. The instructor will grade assignments on a weekly basis and provide both prompt and individualized feedback via the LMS grading system.

1d. Distance Ed Interactions:

Online class activities that promote class interaction and engagement	Brief Description	% of Online Course Hours
Discussion Boards	Students will interact in online discussion boards. Threaded discussion, peer feedback, chat room, discussion, or group presentation, collaborative learning activities	10.00%
Online Lecture	The instructor will present content in online lectures delivered live and/or recorded.	20.00%
Videos	Links to videos will be embedded in the LMS for students to review content and assignments. All videos will be close-captioned.	10.00%
Project Presentation	Students will research a topic and present their information to the class in a presentation in videoconferencing (Zoom) or the LMS.	10.00%
Exams	Students will take weekly formative assessments and summative tests at the end of every unit in the LMS.	20.00%
Written assignments	Weekly journal entries and other written assignments are an important part of this class. The written assignments allow students to apply the course content (delivered through narrated PPT's, recorded videos, handouts, SMC website, etc)	20.00%
Threaded Discussions	Students will interact in threaded discussions. Students will be asked to type responses as well as provide oral responses via audio or videos. Students will submit comments to other students' submissions.	10.00%

2. Organization of Content:
The course will be divided into weekly modules. Each module includes an objectives and assignments page which identifies the weekly required activities such as major topic (ie. SMC Student Services and Technology), assignments, group discussion, and quizzes.

3. Assessments:

% of grade	Activity	Assessment Method

20.00%	Classroom Participation/Discussion Boards	Threaded discussion, peer feedback, chat room, discussion, or group presentation, collaborative learning activities
30.00%	Written Assignments	2-4 assignments throughout course
10.00%	In-class Assignments	Rubric with clear expectations; identify goals and relevant support services at SMC
20.00%	Formative and Summative Quizzes	2-4 quizzes throughout course the LMS Quizzes/Tests
20.00%	Project	Counselor -approved comprehensive educational plan. Rubric/template with clear expectations

4. Instructor's Technical Qualifications:
Instructors should have completed training on the learning management system in place (Canvas). The instructor should be knowledgeable of accessibility resources on and off-campus. Instructor should be familiar with ConferZoom and possess a willingness to stay current as technology changes every day. It is important for instructors to be connected with student support services, such as the Disabled Students Programs and Services, as well as Distance Education professionals and be knowledgeable of campus policies, procedures and timelines.

5. Student Support Services:
Support services that should be integrated into the online classroom will include links to SMC bookstore, Noncredit Dept website, ESL Tutoring information, Noncredit Student Support Services/Counseling, Center for Wellness/Wellbeing, Campus Police, DSPS, LMS (Canvas) support, Online library services, Online and phone Help Desk support. Additionally, technical support for online students is available through the helpdesk by phone 1-877-740-2213 and via email (helpdesk@smconline.org).

6. Accessibility Requirements:
Many factors will best prepare an instructor to remain in compliance with Section 508 standards. The OEI rubric and the Peralta Online Equity rubric contain a thorough overview of required accessibility as it relates to content presentation, interaction, assessment, and accessibility. First and foremost, having an open line of communication with the Disability Resource Center and ensuring both instructors and students understand the accommodations such as extended time and audio files that need to be available to students. Additionally, instructors need to ensure their videos are closed captioned, their syllabus is available in a screen-reader friendly view and that assignments/documents are available in a variety of formats, including word and pdf. And when creating pages, listing clear and aligned objectives, appropriate course navigation and chunking, embedding instructions into content, using specific and consistent font, headings, and appropriate bullets and numbering.

7. Representative Online Lesson or Activity:
Module 2: Student Resources and Technology – using technology to navigate SMC resources, support and matriculation process.
2.1 SMC Orientation (PPT)
2.2 SMC Orientation Quiz
2.3 How to read the schedule of classes (page on the LMS (Canvas) with link to website) and How to register for classes (Instructional video)
2.4 Navigate Corsair Connect (Handout and instructional video)
2.5 Access your SMC student email (Website and handout)
2.6 Send an email from your SMC email account to instructor
2.7 SMC Go App
2.8 Campus Resources (PPT and live presentations from various offices)
2.9 Library and Tutoring Services (Website)
2.10 Discussion Question

Emergency DE to Online: COUNSELING - NONCREDIT 902, Career and Workforce Readiness

Units:	0.00
Total Instructional Hours (usually 18 per unit):	18.00
Hours per week (full semester equivalent) in Lecture:	1.00
In-Class Lab:	0.00
Arranged:	0.00
Outside-of-Class Hours:	36.00
Degree Applicability:	Noncredit

I. **Catalog Description**

This course is designed to introduce students to the career exploration process and how to navigate the workforce and become gainfully employed. Students will engage in career exploration activities through formal assessments. Using online resources, students will learn to research career information, including job descriptions, work environments, employment opportunities, educational requirements, and potential earnings. This course will include interviewing techniques and resume writing. NOTE: Non-native English speakers are recommended to complete ESL 904 or higher prior to taking this course.

II. **Examples of Appropriate Text or Other Required Reading:**

(include all publication dates; for transferable courses at least one text should have been published within the last 7 years)

1. Reference material: Career and Workforce Readiness Course Packet. Includes: Basic Career Exploration Informational Interviewing Resume Writing LinkedIn Profile How to Apply for Jobs How to Prepare for an Interview Social Etiquette in the Workforce

III. **Course Objectives**

Upon completion of this course, the student will be able to:

1. Identify a potential career and educational pathway, through basic career assessments.
2. Identify a job and be able to research and identify the job description and required education, training, skills, potential earnings and employment outlook.
3. Demonstrate understanding of the job application process, including creation of a cover letter and resume.
4. Establish a realistic action plan to obtain employment.
5. Demonstrate how to successfully interview for a job in a mock interview.
6. Demonstrate an understanding of appropriate attire for an interview.
7. Demonstrate understanding of workplace culture.

IV. **Methods of Presentation:**

Online instructor-provided resources, Visiting Lecturers, Group Work, Lecture and Discussion

V. **Course Content**

% of Course	Topic
20.000%	Career Exploration and Assessments
20.000%	Career action plan, decision making and identifying barriers
30.000%	Resume Writing, Informational Interview, Internet job search, LinkedIn and Job application
10.000%	Mock Interview and Dress Attire
10.000%	Work culture
10.000%	Career Identification and Research
100.000%	Total

VI. **Methods of Evaluation**

% of Course	Topic
10%	Class Participation
20%	Class Work: Mock Interview
20%	In Class Assessment (noncredit): Career Assessments

20%	Papers: Reflection papers
30%	Written assignments: Resume and Informational Interview
100%	Total

VII. **Sample Assignments:**

Career Research: This activity is to help you get information about an occupation to help you with making decisions about your career. You will need access to the Internet. Go to www.choices360.com Click Create an Account Enter Access Key: CA01218 Click Next Click the name of the role that best describes you in the Who Are You? Section Enter your date of birth and select Santa Monica College – Select Next Enter your account information. Create a user Account Name and Password. IF INTERNET EXPLORER DOES NOT WORK FOR CREATING YOUR ACCOUNT, TRY A DIFFERENT BROWSER. (for example, if you put an account name in and it keeps telling you it is already in use, this is an internet explorer issue) You will use this to access the site each time you log in. Write your Account Name and Password in the spaces here: Account Name: _____ Password: _____ Provide a secret question and answer to help if you forget your password Check the box if you agree to the privacy policy and terms of the site, and then click NEXT Click on Create Your Account – Start using Choices360! Click on Career Planning – in the menu bar Click on Explore Careers – in the menu bar Choose one of the following options Type a Career title in the "Search For" Box OR Select a letter of the alphabet for a list of careers that begin with that letter OR Select a category in the "Browse Career Clusters" and select a career from the list Once you have selected a career that fits your interests, you can read about the money, outlook, related careers and education, etc. Questions What is the title of the occupation? What are typical activities in this occupation? Can you describe the work environment? What training and education do you need? What is the average salary/hourly wage that this position pays? What are some alternative occupations with similar themes? Does this occupation appeal to you? What concerns might you have from the research? What do you see that sounds like it matches who you are?

Informational Interview: You are asked to conduct an Informational interview on a career of your choice. Sample interview questions will be given in advance, as well as procedures to follow in choosing an interviewee, preparing for the interview, and appropriate questions to ask in order to gather information needed to understand chosen career. Template provided to clarify submission format.

VIII. **Student Learning Outcomes:**

1. Through career and interest assessments, students will be able to identify a career and specific job skills.
2. Students will be able to create a career action plan based on short and long term professional goals identified in class.
3. Students will be able to utilize current online job search resources.
4. Students will be able to complete a job application and create a resume and cover letter.

COUNS 902 Distance Education Application

- ☑ Fully Online
- ☑ Online/Classroom Hybrid (not a delivery option when campus is closed)

1a. Instructor - Student Interaction:

There will be multiple, frequent, and ongoing communication exchanges between the instructor and each student. The instructor will send out a pre-course "welcome letter" 1-2 weeks before the course begins with information about the course and how students can communicate with the instructor and expectations and parameters for student-teacher communication. The instructor will also provide instructions and support as needed for course navigation in videoconferencing (Zoom) and/or in an ongoing Q and A Discussion/Virtual Office where students can ask questions and receive assistance regarding the course. Instructor will provide ongoing and timely feedback to students through one or more of the following methods: private messaging through the LMS inbox, email, chat/text messaging, videoconferencing, telephone, personalized assignment feedback, discussion board postings and virtual office hour appointments. Students will be notified when to expect assignment grading and feedback, and response times for student-initiated questions or comments will be clearly communicated via the course syllabus and in the course introduction module.

1b. Student - Student Interaction:

Students will communicate with their classmates throughout the course regarding course content and everyday life in the LMS and/or in live videoconferencing (Zoom) sessions/breakout rooms. Students will participate in 1-2 asynchronous threaded discussion activities per week. Most discussions will require students to respond to classmates. There will be small group activities/discussions including brainstorm activities and role plays throughout the course.

There will be at least one collaborative group presentation/project per term in which students collaborate via Google docs or LMS (Canvas) groups. Students will be able to communicate with each other informally in a Student Lounge discussion board or a chat room where they are able to communicate with classmates regarding non-course-related topics.

1c. Student - Content Interaction:
Students will interact with course content on a weekly basis through audio/video segments, online lectures, interactive videoconferencing (Zoom) sessions, quizzes, discussions, and/or reflective assignments. Modules will become available on a weekly basis and assignments will be due on a weekly basis. The instructor will grade assignments on a weekly basis and provide both prompt and individualized feedback via the LMS grading system.

1d. Distance Ed Interactions:

Online class activities that promote class interaction and engagement	Brief Description	% of Online Course Hours
Discussion Boards	Students will interact in online discussion boards. Threaded discussion, peer feedback, chat room, discussion, or group presentation, collaborative learning activities	10.00%
Online Lecture	The instructor will present content in online lectures delivered live and/or recorded.	20.00%
Videos	Links to videos will be embedded in Canvas for students to review content and assignments. All videos will be close-captioned.	10.00%
Project Presentation	Students will research a topic and present their information to the class in a presentation in videoconferencing (Zoom) or in the LMS.	10.00%
Exams	Students will take weekly formative assessments and summative tests at the end of every unit in the LMS.	20.00%
Written assignments	Weekly journal entries and other written assignments are an important part of this class. The written assignments allow students to apply the course content (delivered through narrated PPT's, recorded videos, handouts, SMC website etc.)	20.00%
Threaded Discussions	Students will interact in threaded discussions. Students will be asked to type responses as well as provide oral responses via audio or videos. Students will submit comments to other students' submissions.	10.00%

2. Organization of Content:
The course will be divided into weekly modules. Each weekly module is designed to meet the objective/ SLO. Each module will include a narrated PPT and/or video, online assignments, discussion boards, reflection journal, and unit quiz.

3. Assessments:

% of grade	Activity	Assessment Method
20.00%	Papers	Reflection Papers
30.00%	Written Assignments	Resume and Informational Interview
10.00%	Class Participation/Discussion Boards	Threaded discussion, peer feedback, chat room, discussion, or group presentation, collaborative learning activities
20.00%	Oral Presentation	Mock Interview. Rubric with clear expectations
20.00%	Career Assessments	Career assessments and interest inventories

4. Instructor's Technical Qualifications:
Instructors should have completed training on the learning management system in place (Canvas). The instructor should be knowledgeable of accessibility resources on and off-campus. Instructor should be familiar with ConferZoom and possess a willingness to stay current as technology changes every day. It is important for instructors to be connected with student support services, such as the Disabled Students Programs and Services, as well as Distance Education professionals and be knowledgeable of campus policies, procedures and timelines.

5. Student Support Services:
Support services that should be integrated into the online classroom will include links to SMC bookstore, Noncredit Dept website, ESL Tutoring information, Noncredit Student Support Services/Counseling, Center for Wellness/Wellbeing,

Campus Police, DSPS, LMS (Canvas) support, Online library services, Online and phone Help Desk support. Additionally, technical support for online students is available through the helpdesk by phone 1-877-740-2213 and via email (helpdesk@smconline.org).

6. Accessibility Requirements:

Many factors will best prepare an instructor to remain in compliance with Section 508 standards. The OEI rubric and the Peralta Online Equity rubric contain a thorough overview of required accessibility as it relates to content presentation, interaction, assessment, and accessibility. First and foremost, having an open line of communication with the Disability Resource Center and ensuring both instructors and students understand the accommodations such as extended time and audio files that need to be available to students. Additionally, instructors need to ensure their videos are closed captioned, their syllabus is available in a screen-reader friendly view and that assignments/documents are available in a variety of formats, including word and pdf. And when creating pages, listing clear and aligned objectives, appropriate course navigation and chunking, embedding instructions into content, using specific and consistent font, headings, and appropriate bullets and numbering.

7. Representative Online Lesson or Activity:

Module 1: Career Exploration Project
1.1 Career vs Job PPT
1.2 Video on Career Assessments
1.3 Intro to John Holland RIASEC and MBTI
1.4 Career Assessments (Work Values, Skills Inventory, Strong and MBTI)
1.5 Assessment Interpretations

New Course: COMPUTER SCIENCE 310, Cloud Systems Programming

Units:	3.00
Total Instructional Hours (usually 18 per unit):	54.00
Hours per week (full semester equivalent) in Lecture:	3.00
In-Class Lab:	0.00
Arranged:	0.00
Outside-of-Class Hours:	108.00

Transferability:	Transfers to CSU
Degree Applicability:	Credit – Degree Applicable
Prerequisite(s):	Admission to the Bachelor degree program in Cloud Computing
Proposed Start:	Fall 2024
TOP/SAM Code:	070710 - Computer Programming / B - Advanced Occupational
Grading:	Letter Grade Only (upper div major)
Repeatability:	No
Library:	List of suggested materials has been given to Librarian
Minimum Qualification:	Computer Science
Program Impact:	Cloud Computing Bachelor's degree

Rationale
This is a new course for the Cloud Computing Bachelor of Science Degree

I. **Catalog Description**
This course is designed to equip students with the essential skills for programming in a cloud computing environment. In this course, students will explore various aspects of cloud programming including customizing workflows, optimizing techniques, and utilizing coding for automation. Topics covered include how to use code to create feedback-based computing approaches, collaborate seamlessly with developers, troubleshoot effectively, and utilize the full potential of cloud software platforms. Using hands-on practice and real-world use cases, students will develop the skills required for cloud system programming.

II. **Examples of Appropriate Text or Other Required Reading:**
(include all publication dates; for transferable courses at least one text should have been published within the last 7 years)
1. Amanda Wegener, 1, Cloud Computing: Systems and Technologies, CLANRYE INTERNATIONAL © 2019, ISBN: 978-1632407948
2. Programming Google Cloud: Building Cloud Native Applications with GCP, 1, Rui Costa, Jason Baker, O'RIELLY Media © 2023, ISBN: 781492089032

III. **Course Objectives**
Upon completion of this course, the student will be able to:
1. Demonstrate knowledge of software-based cloud computing.
2. Create software-based cloud infrastructure
3. utilize networking and storage capabilities to support cloud systems

IV. **Methods of Presentation:**
Distance Education, Lecture and Discussion, Observation and Demonstration, Discussion

V. **Course Content**

% of Course	Topic
20.000%	Coding for Cloud Engineering and Management
20.000%	Automating Repetitive Tasks to Boost Efficiency
20.000%	Effective Collaboration with Developers through Code Understanding
20.000%	Troubleshooting Infrastructure and Application Issues with Coding Skills
20.000%	Customizing cloud workflows using scripting

100.000%	Total

VI. **Methods of Evaluation**

% of Course	Topic
25%	Exams/Tests
25%	Final Project
25%	Homework
25%	Group Projects
100%	Total

VII. **Sample Assignments:**

Assignment 1: In this assignment, you will create a customized workflow and automating task within a cloud computing environment using coding techniques. You are required to design a custom workflow for a cloud-based application or service of your choice. Your submission should include a detailed explanation of how this customized workflow enhances efficiency and productivity.

Assignment 2: For this assignment, you will conduct cloud system optimization while incorporating coding to reinforce your understanding. Analyze the performance optimization strategies of a selected cloud service provider. Utilize coding examples to compare and contrast different optimization strategies

VIII. **Student Learning Outcomes:**

1. Students will design, devise, and construct clouds systems that automate workflows
2. Students will develop scripts to monitor, troubleshoot and optimize cloud

CS 310 Distance Education Application

- ☑ Fully Online
- ☑ Online/Classroom Hybrid (not a delivery option when campus is closed)

1a. Instructor - Student Interaction:

Students get feedback on their weekly assigned work. Feedback includes criticism of their work and suggestions on how to better study. In the two midterm tests and the final exam, students get feedback on their errors and how to improve. In the weekly threaded discussions, students must post answers to given questions/prompts and they must provide unique answers. They get feedback on their answers, how complete they are and what they can improve on.

1b. Student - Student Interaction:

Every week, students must post messages as a response to a problem specification. They must comment on each other's work. Students are placed in groups to enable them to contribute as well as read all posted messages.

1c. Student - Content Interaction:

Each week, students get a lecture in the form of video and PDF files. They may also get additional videos to explain certain concepts. Additionally, there may be supporting files and documents added to each week's content.

1d. Distance Ed Interactions:

Online class activities that promote class interaction and engagement	Brief Description	% of Online Course Hours
Discussion Boards	Students post weekly answers to questions. Instructor will provide feedback and a grade based on posting.	20.00%
Exams	Midterm and Final Exam	20.00%
Online Lecture	PowerPoint slides with animation and annotations to explain the topics covered. Videos will be presented for special topics.	20.00%
Written assignments	Students submit written assignments and get individual feedback as well as sample solutions and general comments from the whole class.	20.00%
Project Presentation	Students complete a final project utilizing cloud services. The instructor will be providing individual feedback on each project.	20.00%

2. Organization of Content:
Content will be organized in folders (modules). Each module will contain video lectures, extra readings as well as links to articles on the most recent discussions in the media on the topic. The module will also contain threaded discussion where students interact with their instructor as well as with each other. There are also links to the homework and or group project or any other assigned course work item.

3. Assessments:

% of grade	Activity	Assessment Method
10.00%	Threaded Discussions	Weekly discussions facilitate question/answering as well as providing feedback or commenting on postings. Each week students must address a main discussion topic.
25.00%	Homework	At least 5 programming and or essay type assignments will be required
25.00%	Group Projects	Group projects faciltite not only the students practice of the technical skills they learn but also how to communicate and work with others,
25.00%	Final Project	Grade reflects the technical skills of the project but also the presentation and communication skills.
15.00%	Tests	Midterm, quizzes and final exams are included to reflect the student's knowledge of the theoretical ascpect of the content covered.

4. Instructor's Technical Qualifications:
Instructors must be well versed in the use of computers, the web, and course management systems (CMS) to interact with students through the CMS messaging boards, email, and online video and chat meetings.

5. Student Support Services:
Through the syllabus, faculty can place links to library, bookstore, financial aid, disabled students center and counseling resources.

6. Accessibility Requirements:
The course management system must be Section 508 complaint as well as any videos, images, and tables must be properly captioned. All PDF's and other added files and documents must be Section 508 compliant.

7. Representative Online Lesson or Activity:
On the discussion board, students will be presented with a topic to discuss. Working in groups, one group of students will present a model, while other groups will provide critique and or support in favor of that model. Grades along with comments will be assigned based on the quality and creativity of such replies.

New Course: COMPUTER SCIENCE 320, Cloud Developer

Units:	3.00
Total Instructional Hours (usually 18 per unit):	54.00
Hours per week (full semester equivalent) in Lecture:	3.00
In-Class Lab:	0.00
Arranged:	0.00
Outside-of-Class Hours:	108.00
Date Submitted:	May 2023
Transferability:	Transfers to CSU
Degree Applicability:	Credit – Degree Applicable
Prerequisite(s):	Admission to the Bachelor degree program in Cloud Computing
Proposed Start:	Fall 2024
TOP/SAM Code:	070710 - Computer Programming / B - Advanced Occupational
Grading:	Letter Grade Only (upper div major)
Repeatability:	No
Library:	List of suggested materials has been given to Librarian
Minimum Qualification:	Computer Science
Program Impact:	Cloud Computing Bachelor's Degree

Rationale
This is a new course for the Cloud Computing Bachelor of Science Degree

I. **Catalog Description**
In this course, students will develop and deploy cloud native applications. Topics covered will include application life-cycle management, the use of containers, and the development of serverless applications. Students will write code, test, debug and deploy to the Continuous Integration/Continuous Delivery (CI/CD) software application lifecycle.

II. **Examples of Appropriate Text or Other Required Reading:**
(include all publication dates; for transferable courses at least one text should have been published within the last 7 years)
1. Cloud Computing: Concepts, Technology And Architecture, 2nd, Thomas Erl, Ricardo Puttini and Zaigham Mahmood, Pearson © 2023, ISBN: 978-0138052256
2. Cloud Computing Solutions Architect : A Hands-On Approach, 1st, Arshdeep Bahga and Vijay Madisetti, VPT Publishers © 2019, ISBN: 978-0996025591
3. Solution's Architect Handbook, 2nd, Saurabh Shrivastava and Neelanjali Srivastav, Packt Publishing © 2022, ISBN: 978-1801816618

III. **Course Objectives**
Upon completion of this course, the student will be able to:
1. Plan for a continuous integration/continuous deployment approach
2. Implement applications that utilize database tools
3. Utilize containers and virtualization in cloud applications

IV. **Methods of Presentation:**
Lecture and Discussion, Observation and Demonstration, Projects, Discussion, Group Work, Distance Education

V. **Course Content**

% of Course	Topic
25.000%	Develop cloud-native applications with different cloud services
25.000%	Integrate different cloud database tools into cloud-native applications
25.000%	Support containerization and virtualization in a cloud environment
25.000%	Understand and implement a CI/CD (Continuous Integration/Continuous Deployment) pipeline in a cloud environment

100.000%	Total

VI. **Methods of Evaluation**

% of Course	Topic
20%	Exams/Tests
20%	Final exam
20%	Group Projects
20%	Homework
20%	Quizzes
100%	Total

VII. **Sample Assignments:**

Assignment 1 - CI/CD: Build an AWS CodePipeline pipeline and add a stage that requires manual approval before deploying the source code to production. Utilize AWS CodePipeline to implement a manual approval process to then deploy a web application. Build in a stage with a manual approval action right after the code repository and before the deployment stage. Implement with AWS CodePipeline to deploy AWS infrastructure through AWS CloudFormation. Add an action to our AWS CodePipeline that requires a manual approval intended to have any code commits reviewed prior to being deployed.

Assignment 2 - Serverless Applications: Create a fully working serverless reminder application using S3, Lambda, API Gateway, Step Functions, Simple Email Service, and Simple Notification Service. Architecting and implementing serverless solutions within AWS is a fundamental skillset need by cloud engineers.

VIII. **Student Learning Outcomes:**

1. Students will develop cloud services utilizing the techniques of application lifecycle management.
2. Students will build basic cloud-native applications and implement a continuous integration/continuous deployment cycle.

CS 320 Distance Education Application

- ☑ Fully Online
- ☑ Online/Classroom Hybrid (not a delivery option when campus is closed)

1a. Instructor - Student Interaction:

Students get feedback on their assignments, which are assigned every other week, including how to improve and follow best practices. In the quizzes, which are assigned every other week, students get feedback on their errors and get suggestions on how to better study. In the midterm and the final exam, students get feedback on their errors and how to improve. In the weekly threaded discussions, students must post answers to given questions/prompts and they must provide unique answers. They get feedback on their answers, how complete they are, and what they can improve on. For group projects, they get feedback from peers and instructor.

1b. Student - Student Interaction:

Every week, students must post responses on to a threaded discussion board based on a stated prompt. They must comment on each other. Students are placed in groups to enable them to contribute as well as read all posted messages.

1c. Student - Content Interaction:

Each week, students get a lecture in the form of video and PDF files. They may also get additional videos to explain certain concepts. Additionally, there may be supporting files and documents added to each week's content.

1d. Distance Ed Interactions:

Online class activities that promote class interaction and engagement	Brief Description	% of Online Course Hours
Online Lecture	PowerPoint slides with animation and annotations to explain the topics covered. Videos will be presented for special topics	20.00%

Discussion Boards	Students post weekly answers to questions. Instructor will provide feedback and a grade based on posting.	10.00%
Exams	Midterm and Final Exam	20.00%
Project Presentation	Students complete a final project utilizing cloud services. The instructor will be providing individual feedback for each project.	25.00%
Written assignments	Students submit written assignments and get individual feedback as well as sample solutions and general comments from the whole class.	25.00%

2. Organization of Content:
Using an online course management system, each week there will be a module instructions page which will lead students to other documents, and files in addition to the assigned work of a discussion message and an assignment/project or a quiz.

3. Assessments:

% of grade	Activity	Assessment Method
10.00%	Threaded Discussions	The Discussion board will facilitate questions and answers. Students may ask questions as well as answer them. Each week questions are posted in the Discussion board and each student is required to post a unique answer. Such answers are graded.
15.00%	Midterm	Midterm reflects the student's knowledge of the different aspects of the content covered
25.00%	Final Exam	Final reflects the student's knowledge of the different aspects of the content covered
20.00%	Final Project	Students will get feedback on an organized final project.
20.00%	Homework Assignments	Students will be given instructional material and exercises related to the topic that is being covered. A sample solution with overall comments will be provided to all students.
10.00%	Quizzes	Students will be taking quizzes. These quizzes will help students to keep up with the class material. Students will receive answer keys for each quiz and they will be allowed to post questions on the discussion board if there is a need for clarification.

4. Instructor's Technical Qualifications:
Instructors must be well versed in the use of computers, the web, and course management systems (CMS) to interact with students through the CMS messaging boards, email, and online video and chat meetings. As per ACCJC requirements, upper-division classes must be taught by faculty who hold at least a master’s degree in Computer Science.

5. Student Support Services:
Through the syllabus, faculty will place links to library, bookstore, financial aid, disabled students center and counseling resources for students to access as needed.

6. Accessibility Requirements:
The course management system, must be Section 508 complaint as well as any videos, images, tables must be properly captioned. All PDF's and other added files and documents must be Section 508 compliant.

7. Representative Online Lesson or Activity:
Respond to the threaded discussion prompt to outline how you would architect a serverless application for the scenario presented. Critique and evaluate the solutions suggested by your classmates for efficiency and optimization purposes.

New Course: COMPUTER SCIENCE 325, Ethics for IT Professionals

Units:	3.00
Total Instructional Hours (usually 18 per unit):	54.00
Hours per week (full semester equivalent) in Lecture:	3.00
In-Class Lab:	0.00
Arranged:	0.00
Outside-of-Class Hours:	108.00
Date Submitted:	May 2023
Transferability:	Transfers to CSU
Degree Applicability:	Credit – Degree Applicable
Prerequisite(s):	Admission to the Bachelor degree program in Cloud Computing; ENGL 300
Proposed Start:	Fall 2024
TOP/SAM Code:	070710 - Computer Programming / B - Advanced Occupational
Grading:	Letter Grade Only (upper div major)
Repeatability:	No
Library:	List of suggested materials has been given to Librarian
Minimum Qualification:	Computer Science
Program Impact:	Cloud Computing Bachelor's Degree

Rationale
This new course will be part of the Bachelors degree in Cloud computing as an upper division course.

I. **Catalog Description**
Ethics in Information Technology is intended to educate IT professionals on the tremendous impact ethical issues play managing data in the modern business world. The topics covered in this course are relevant to anyone preparing to enter the field of IT. The course will give students the foundation they need to make appropriate decisions when faced with difficult situations and make a positive impact in the field of information technology.

II. **Examples of Appropriate Text or Other Required Reading:**
(include all publication dates; for transferable courses at least one text should have been published within the last 7 years)

1. Business Ethics - OER, 1, Steven Byars, Kurt Stnaberry, OpenStax, OER © 2022, ISBN: 13: 978-1-947172-56-2
2. Computer Ethics and Professional Responsibility, 1, Simon Rogerson, Terrell Ward Bynum, Wiley-Blackwell © 2003, ISBN: 978-1855548459
3. Ethics in Information Technology, 1, George Reynolds, Thomson Course Technology © 2007, ISBN: 978-1-4188-3631-3

III. **Course Objectives**
Upon completion of this course, the student will be able to:

1. Demonstrate knowledge of current models of information technology ethics.
2. Apply ethical theories to interpret personal and group behavior when using a variety of information technology tools.
3. Evaluate the ethical choices made by self and others when serving various roles that expose social and multicultural differences.
4. Construct written arguments in a variety of formats on the evolving nature of ethical norms relating to new technologies.

IV. **Methods of Presentation:**
Distance Education, Lecture and Discussion, Observation and Demonstration, Discussion, Critique, Projects

V. **Course Content**

% of Course	Topic
10.000%	Regulation vs Freedom of thought
20.000%	Utilitarian ethics and AI

20.000%	Bias and Fairness
20.000%	Responsible Technology and AI
10.000%	Cyberspace, crime and the pillars of satefy
10.000%	Credibility and Trust
10.000%	Computer/Information Ethics and Transparency
100.000%	Total

VI. **Methods of Evaluation**

% of Course	Topic
25%	Homework: Assignments to demonstrate the students' understand of concepts as well as the application of their own judgements.
25%	Exams/Tests: Two midterms
25%	Final exam
25%	Group Projects
100%	Total

VII. **Sample Assignments:**

Online vs Life: Ethical Norms: Write an essay that addresses what the differences are between online vs real life situations that involve the use of our data. You must list at least 5 situations. Explain how the ethical questions of privacy and security are different or the same and should they be different or be the same.

Wiki Collaborations: Ethical or No: 1. Assume the roles of creator, editor, person, critic and trust monitor. How are those roles different? 2. What is your opinion on collaborative editing in sites like Wikis? 3. Should we use more wiki sites to educate the public, spread information and expose dirty politics?

VIII. **Student Learning Outcomes:**

1. Students will debate and critique different ethical practices involving a variety of information technology tools.
2. Students will differentiate the ethical issues and pitfalls in the professional practice of developing technologies.
3. Students will identify ways in which fairness, transparency and accountability could mitigate various ethical concerns with different technologies.

CS 325 Distance Education Application

- ☑ Fully Online
- ☑ Online/Classroom Hybrid (not a delivery option when campus is closed)

1a. Instructor - Student Interaction:

Students get feedback on their weekly assigned work. Feedback includes criticism of their work and suggestions on how to better study. In the two midterm tests and the final exam, students get feedback on their errors and how to improve. In the weekly threaded discussions, students must post answers to given questions/prompts and they must provide unique answers. They get feedback on their answers, how complete they are and what they can improve on. For group projects students get critique from peers and their instructor.

1b. Student - Student Interaction:

Every week, students must post messages as a response to a problem specification. They must comment on each other's work. Students are placed in groups to enable them to contribute as well as read all posted messages.

1c. Student - Content Interaction:

Each week, students get a lecture in the form of video and PDF files. They may also get additional videos to explain certain concepts. Additionally, there may be supporting files and documents added to each week's content.

1d. Distance Ed Interactions:

Online class activities that promote class interaction and engagement	Brief Description	% of Online Course Hours
Discussion Boards	Discussion Boards Weekly Discussion board facilitate question/answering as well as providing feedback or commenting on postings. Each week students must address a main discussion topic.	20.00%
Online Lecture	Lectures in the format of PDF slides as well as videos from the web and instructor-recorded.	20.00%
Videos	Videos will cover recent news topics to add more reali-life exeriences to the students knowledge.	10.00%
Exams	Midterm and Final Exam (2 Exams)	25.00%
Written assignments	Students submit written assignments and get individual feedback as well as sample solutions and general comments from the whole class,	25.00%

2. Organization of Content:
Using an online course management system, each week there will be a main home page which will lead students to other documents, and files in addition to the assigned work of a discussion message and a programming assignment/project or a quiz.

3. Assessments:

% of grade	Activity	Assessment Method
25.00%	Midterms	Midterms reflect the student's knowledge of the different aspects of the content covered.
15.00%	Discussions	The Discussion board will facilitate questions and answers. Students may ask questions as well as answer them. Each week questions are posted in the Discussion board and each student is required to post a unique answer. Such answers are graded.
25.00%	Homework Assignments	Assignments are graded with added comments on what the student did well and what needs improvement.
25.00%	Final Exam	Final reflects the student's knowledge of the different aspects of the content covered.
10.00%	Group Project	This item will engage students to work together and exchange ideas as well as learn how to divide roles. They will get feedback on their presetation of their work.

4. Instructor's Technical Qualifications:
Instructors must be well versed in the use of computers, the web, and course management systems (CMS) to interact with students through the CMS messaging boards, email, and online video and chat meetings.

5. Student Support Services:
Through the syllabus, faculty can place links to library, bookstore, financial aid, disabled students center and counseling resources.

6. Accessibility Requirements:
The course management system must be Section 508 complaint as well as any videos, images, and tables must be properly captioned. All PDF's and other added files and documents must be Section 508 compliant.

7. Representative Online Lesson or Activity:
In the Discussion board, students will be presented with a topic to discuss and some students will be assigned to argue for the issue while others will be assigned to argue against. Mid-week the roles will be reversed. Grades along with comments will be assigned based on the quality and creativity of such replies.

Prerequisite Checklist and Worksheet: CS 325
Prerequisite: English 300 – Advanced Writing

SECTION 1 - CONTENT REVIEW: If any criterion is not met, the prerequisite will be disallowed.

Criterion	Met	Not Met
1. Faculty with appropriate expertise have been involved in the determination of the prerequisite, corequisite or advisory.	**x**	
2. The department in which the course is (will be) taught has considered course objectives in accordance with accreditation standards.	**x**	
3. Selection of this prerequisite, corequisite or advisory is based on tests, the type and number of examinations, and grading criteria.	**x**	
4. Selection of this prerequisite, corequisite or advisory is based on a detailed course syllabus and outline of record, related instructional materials and course format.	**x**	
5. The body of knowledge and/or skills which are necessary for success before and/or concurrent with enrollment have been specified in writing.	**x**	
6. The course materials presented in this prerequisite or corequisite have been reviewed and determined to teach knowledge or skills needed for success in the course requiring this prerequisite.	**x**	
7. The body of knowledge and/or skills necessary for success in the course have been matched with the knowledge and skills developed by the prerequisite, corequisite or advisory.	**x**	
8. The body of knowledge and/or skills taught in the prerequisite are not an instructional unit of the course requiring the prerequisite.	**x**	
9. Written documentation that steps 1 to 8 above have been taken is readily available in departmental files.	**x**	

SECTION II - ADDITIONAL LEVEL OF SCRUTINY:

X Type 2: Sequential within and across disciplines (e.g., Physics 7, 8, 9, …)
Complete the Prerequisite Worksheet

ENTRANCE SKILLS FOR **Computer Science 325 – Ethics for IT Professionals**
(What the student needs to be able to do or understand BEFORE entering the course in order to be successful)

A)	Apply discipline-specific historical, critical, and theoretical knowledge to create written work in a variety of genres and formats.
B)	Determine and evaluate appropriate genre/media for presentations of writing and research.
C)	Critically analyze communications according to the rhetorical expectations and vocabulary of the discipline

EXIT SKILLS (objectives) FOR **English 300 – Advanced Writing**
(What the student has the demonstrated ability to do or understand AFTER successful completion of this course)

1.	Apply discipline-specific historical, critical, and theoretical knowledge to create written work in a variety of genres and formats.
2.	Determine and evaluate appropriate genre/media for presentations of writing and research.
3.	Critically analyze communications according to the rhetorical expectations and vocabulary of the discipline

	ENTRANCE SKILLS FOR CS 325								
EXIT SKILLS FOR ENGL 300		A	B	C	D	E	F	G	H
	1	x							
	2		x						
	3			x					
	4								
	5								
	6								
	7								
	8								

New Course: COMPUTER SCIENCE 330, Cloud Operations Technologies and Tools

Units:	3.00
Total Instructional Hours (usually 18 per unit):	54.00
Hours per week (full semester equivalent) in Lecture:	3.00
In-Class Lab:	0.00
Arranged:	0.00
Outside-of-Class Hours:	108.00
Date Submitted:	May 2023
Transferability:	Transfers to CSU
Degree Applicability:	Credit – Degree Applicable
Prerequisite(s):	Admission to the Bachelor degree program in Cloud Computing; CS 320
Proposed Start:	Fall 2024
TOP/SAM Code:	070710 - Computer Programming / B - Advanced Occupational
Grading:	Letter Grade Only (upper div major)
Repeatability:	No
Library:	List of suggested materials has been given to Librarian
Minimum Qualification:	Computer Science
Program Impact:	Cloud Computing Bachelor's Degree

Rationale: This is a new course for the Cloud Computing Bachelor of Science Degree

I. **Catalog Description**

This course provides an understanding of the principles, practices, and technologies that enable organizations to achieve more reliable software and service development and deployment. Students will explore the collaboration between the development team and operations to automate testing and deployment processes while collecting continuous feedback and providing improvements. The course focuses on the essential tools and technologies used for configuration management to automate cloud infrastructure.

II. **Examples of Appropriate Text or Other Required Reading:**

(include all publication dates; for transferable courses at least one text should have been published within the last 7 years)

1. Design Patterns for Cloud Native Applications, Kasun Indrasiri and Sriskandarajah Suhothayan, O'Reilly © 2022, ISBN: 978-1492090717
2. The DevOps Handbook: How to Create World-Class Agility, Reliability, & Security in Technology Organizations , 2nd, Gene Kim, Jez Humble , IT Revolution © 2021, ISBN: 978-1950508402
3. Cloud Native DevOps with Kubernetes: Building, Deploying, and Scaling Modern Applications in the Cloud, Justin Domingus, John Arundel, O'Reilly Media © 2022, ISBN: 978-1098116828
4. Cloud Computing: Concepts, Technology And Architecture, 2, Thomas Erl, Ricardo Puttini and Zaigham Mahmood, Pearson © 2023, ISBN: 978-0138052256

III. **Course Objectives**

Upon completion of this course, the student will be able to:

1. Employ the tools and technologies used for configuration management and automation in cloud infrastructure.
2. Apply the fundamental principles underlying cloud systems automation.
3. Utilize the principles of continuous integration and delivery

IV. **Methods of Presentation:**

Lecture and Discussion, Observation and Demonstration, Discussion, Projects, Group Work, Distance Education

V. **Course Content**

% of Course	Topic
20.000%	Automate infrastructure configuration and management using industry standard.
20.000%	Apply acquired knowledge and skills to design, develop, and maintain systems supporting continuous delivery and deployment.

20.000%	Learn the capabilities of cloud computing platforms for efficient application deployment and scalability.
20.000%	Implement monitoring and logging practices to gain insights into performance and troubleshoot issues.
20.000%	Understand the core principles and practices of cloud operations to enable efficient development and deployment.
100.000%	Total

VI. **Methods of Evaluation**

% of Course	Topic
20%	Exams/Tests
20%	Final exam
20%	Group Projects
20%	Homework
20%	Quizzes
100%	Total

VII. **Sample Assignments:**

Assignment 1: Containerization and Orchestration: Objective: Containerize a microservices-based application and deploy it on a container orchestration platform. Description: For this assignment, you will design a microservices architecture for a sample application. Your task is to containerize each microservice using Docker and then deploy the containerized microservices on a container orchestration platform such as Kubernetes or Docker Swarm. Additionally, you will configure health checks and implement monitoring and logging solutions to ensure the reliability and performance of the microservices.

Assignment 2: DevOps with AWS and Terraform: Objective: Automate the provisioning and management of AWS cloud infrastructure using Terraform as an Infrastructure as Code (IaC) tool. Description: Automate the provisioning and management of AWS cloud infrastructure using Terraform, an Infrastructure as Code (IaC) tool. Define the infrastructure requirements for a scalable web application, including compute resources, networking, and storage. Write infrastructure code using Terraform to provision and configure the necessary AWS resources based on the defined requirements. Employ Terraform best practices such as modularity and parameterization. Utilize Git for version control and demonstrate collaboration and change management through branching and merging. Showcase the benefits of IaC by provisioning, modifying, and tearing down the infrastructure using Terraform commands. Emphasize the repeatability, consistency, and scalability achieved through the implementation of DevOps practices with AWS and Terraform.

VIII. **Student Learning Outcomes:**

1. Students will orchestrate containerized microservices to support various real-world scenarios
2. Students will efficiently deploy infrastructure-as-code to scale cloud resources

CS 330 Distance Education Application

- ☑ Fully Online
- ☑ Online/Classroom Hybrid (not a delivery option when campus is closed)

1a. Instructor - Student Interaction:

Students get feedback on their assignments, which are assigned every other week, including how to improve and follow best practices. In the quizzes, which are assigned every other week, students get feedback on their errors and get suggestions on how to better study. In the midterm and the final exam, students get feedback on their errors and how to improve. In the weekly threaded discussions, students must post answers to given questions/prompts and they must provide unique answers. They get feedback on their answers, how complete they are, and what they can improve on. Students get feedback on their group projects from their peers and faculty.

1b. Student - Student Interaction:

Every week, students must post responses on to a threaded discussion board based on a stated prompt. They must comment on each other. Students are placed in groups to enable them to contribute as well as read all posted messages.

1c. Student - Content Interaction:
Each week, students get a lecture in the form of video and PDF files. They may also get additional videos to explain certain concepts. Additionally, there may be supporting files and documents added to each week's content.

1d. Distance Ed Interactions:

Online class activities that promote class interaction and engagement	Brief Description	% of Online Course Hours
Discussion Boards	Students post weekly answers to questions. Instructor will provide feedback and a grade based on posting.	10.00%
Online Lecture	PowerPoint slides with animation and annotations to explain the topics covered. Videos will be presented for special topics.	20.00%
Exams	Midterm and Final Exam (2 Exams)	20.00%
Project Presentation	Students complete a final project utilizing cloud services. The instructor will be providing individual feedback for each project.	25.00%
Written assignments	Students submit written assignments and get individual feedback as well as sample solutions and general comments from the whole class.	25.00%

2. Organization of Content:
Using an online course management system, each week there will be a module instructions page which will lead students to other documents, and files in addition to the assigned work of a discussion message and an assignment/project or a quiz.

3. Assessments:

% of grade	Activity	Assessment Method
10.00%	Threaded Discussions	The Discussion board will facilitate questions and answers. Students may ask questions as well as answer them. Each week questions are posted in the Discussion board and each student is required to post a unique answer. Such answers are graded.
10.00%	Midterm	Midterm reflects the students knowledge of the different aspects of the content covered
15.00%	Final Exam	Final Exam reflects the student's knowledge of the different aspects of the content covered
15.00%	Final Project	Students will get feedback on an organized final project.
30.00%	Homework Assignments	Students will be given instructional material and exercises related to the topic that is being covered. A sample solution with overall comments will be provided to all students.
20.00%	Quizzes	Students will be taking quizzes. These quizzes will help students to keep up with the class material. Students will receive answer keys for each quiz and they will be allowed to post questions on the discussion board if there is a need for clarification.

4. Instructor's Technical Qualifications:
Instructors must be well versed in the use of computers, the web, and course management systems (CMS) to interact with students through the CMS messaging boards, email, and online video and chat meetings. As per ACCJC requirements, upper-division classes must be taught by faculty who hold at least a master’s degree in Computer Science.

5. Student Support Services:
Through the syllabus, faculty will place links to library, bookstore, financial aid, disabled students center and counseling resources for students to access as needed.

6. Accessibility Requirements:
The course management system, must be Section 508 complaint as well as any videos, images, tables must be properly captioned. All PDF's and other added files and documents must be Section 508 compliant.

7. Representative Online Lesson or Activity:
Automate the provisioning and management of AWS cloud infrastructure using Terraform as an Infrastructure as Code (IaC) tool. Automate the provisioning and management of AWS cloud infrastructure using Terraform. Define the infrastructure requirements for a scalable web application, including compute resources, networking, and storage. Employ best practices utilizing Git for version control and demonstrate collaboration and change management through branching and merging.

Prerequisite Checklist and Worksheet: CS 330
Prerequisite: Computer Science 320 – Cloud Developer

SECTION 1 - CONTENT REVIEW: If any criterion is not met, the prerequisite will be disallowed.

Criterion	Met	Not Met
1. Faculty with appropriate expertise have been involved in the determination of the prerequisite, corequisite or advisory.	**x**	
2. The department in which the course is (will be) taught has considered course objectives in accordance with accreditation standards.	**x**	
3. Selection of this prerequisite, corequisite or advisory is based on tests, the type and number of examinations, and grading criteria.	**x**	
4. Selection of this prerequisite, corequisite or advisory is based on a detailed course syllabus and outline of record, related instructional materials and course format.	**x**	
5. The body of knowledge and/or skills which are necessary for success before and/or concurrent with enrollment have been specified in writing.	**x**	
6. The course materials presented in this prerequisite or corequisite have been reviewed and determined to teach knowledge or skills needed for success in the course requiring this prerequisite.	**x**	
7. The body of knowledge and/or skills necessary for success in the course have been matched with the knowledge and skills developed by the prerequisite, corequisite or advisory.	**x**	
8. The body of knowledge and/or skills taught in the prerequisite are not an instructional unit of the course requiring the prerequisite.	**x**	
9. Written documentation that steps 1 to 8 above have been taken is readily available in departmental files.	**x**	

SECTION II - ADDITIONAL LEVEL OF SCRUTINY:

X Type 2: Sequential within and across disciplines (e.g., Physics 7, 8, 9, …)
Complete the Prerequisite Worksheet

ENTRANCE SKILLS FOR **Computer Science 330 – Cloud Operations Technologies and Tools**
(What the student needs to be able to do or understand BEFORE entering the course in order to be successful)

A)	Understand the use cases of different cloud services for application lifecycle management
B)	Build basic cloud-native applications using various cloud services
C)	Implement a continuous integration/continuous deployment cycle approach to the software development lifecycle

EXIT SKILLS (objectives) FOR **Computer Science 320 – Cloud Developer**
(What the student has the demonstrated ability to do or understand AFTER successful completion of this course)

1.	Understand the use cases of different cloud services for application lifecycle management
2.	Build basic cloud-native applications using various cloud services
3.	Implement a continuous integration/continuous deployment cycle approach to the software development lifecycle

		ENTRANCE SKILLS FOR CS 330							
		A	B	C	D	E	F	G	H
EXIT SKILLS FOR CS 320	1	x							
	2		x						
	3			x					
	4								
	5								
	6								

New Course: COMPUTER SCIENCE 340, System Virtualization Fundamentals

Units:	3.00
Total Instructional Hours (usually 18 per unit):	54.00
Hours per week (full semester equivalent) in Lecture:	3.00
In-Class Lab:	0.00
Arranged:	0.00
Outside-of-Class Hours:	108.00

Transferability:	Transfers to CSU
Degree Applicability:	Credit – Degree Applicable
Prerequisite(s):	Admission to the Bachelor degree program in Cloud Computing; CS 310
Proposed Start:	Fall 2024
TOP/SAM Code:	070710 - Computer Programming / B - Advanced Occupational
Grading:	Letter Grade Only (upper div major)
Repeatability:	No
Library:	List of suggested materials has been given to Librarian
Minimum Qualification:	Computer Science
Program Impact:	Cloud Computing Bachelor's Degree

Rationale:
This is a new course for the Cloud Computing Bachelor of Science Degree

I. **Catalog Description**
This course provides a comprehensive understanding of modern virtualization technologies around operating systems, networking, and storage. Students will receive hands-on experience installing, configuring, and managing various virtualization hypervisors. They will explore the applications of virtualization technologies in cloud infrastructures. The course highlights the virtualization of operating systems, networking components, and storage resources, with a focus on creating scalable and flexible IT environments. Students will backup, restore, and migrate virtual servers to a cloud platform.

II. **Examples of Appropriate Text or Other Required Reading:**
(include all publication dates; for transferable courses at least one text should have been published within the last 7 years)
1. Virtualization Essentials, 3rd, Matthew Portnoy, Sybex © 2023, ISBN: 978-1394181568
2. Building Cloud and Virtualization Infrastructure: A Hands-on Approach to Virtualization and Implementation of a Private Cloud Using Real-time Use-cases, 1st, Mrs.Lavanya S, Dr. Venkatachalam K, BPB Publications © 2021, ISBN: 978-9390684472
3. VMware Certified Professional Data Center Virtualization on vSphere 6.7 Study Guide: Exam 2V0-21.19 , Jon Hall, Joshua Andrews, Sybex © 2020, ISBN: 978-1119214694
4. Bill Wilder. Cloud Architecture Patterns, O'Reilly

III. **Course Objectives**
Upon completion of this course, the student will be able to:
1. Develop a comprehensive understanding of virtualization technologies and their significance in cloud computing.
2. Explore the virtualization of operating systems, networking components, and storage resources in cloud environments.
3. Install, configure and manage various virtualization hypervisors

IV. **Methods of Presentation:**
Lecture and Discussion, Observation and Demonstration, Discussion, Projects, Group Work, Distance Education

V. **Course Content**

% of Course	Topic
20.000%	Install, configure, and manage various virtualization technologies to deploy IT workloads.
20.000%	Setup hypervisors to ensure secure and isolated environments for virtual instances.

20.000%	Create and configure virtual networks to achieve network segmentation, enforce security controls, and establish connectivity.
20.000%	Deploy storage virtualization technologies such as virtual disk formats, storage clusters, storage pools, and virtual storage appliances.
20.000%	Analyze and evaluate custom built virtualization systems to understand their impact on performance, security, and efficiency in cloud environments.
100.000%	Total

VI. **Methods of Evaluation**

% of Course	Topic
20%	Exams/Tests
20%	Final exam
20%	Group Projects
20%	Homework
20%	Quizzes
100%	Total

VII. **Sample Assignments:**

Assignment 1: Hypervisor Installation and Configuration: In this assignment, select a virtualization hypervisor based on given requirements. Then proceed to install and configure the chosen hypervisor on a designated host machine or virtual environment. Once the hypervisor is set up, create a set of virtual machines with different configurations, such as varying operating systems and networking setups. Also optimize the settings of the virtual machines to ensure efficient performance. Throughout the process, you are required to document the installation and configuration steps, including any challenges encountered and the solutions implemented.

Assignment 2: Virtualization Performance Optimization: In this assignment, select a virtualized environment, such as a set of virtual machines running on a specific hypervisor. Conduct performance monitoring and analysis of the virtualized environment using appropriate tools. The goal is to identify any potential performance bottlenecks, whether they relate to CPU, memory, network, or storage limitations. Based on the analysis findings, implement optimization techniques to improve the performance of the virtualized environment. This may involve adjusting resource allocations, optimizing networking configurations, or utilizing advanced features provided by the hypervisor. To measure the effectiveness of the optimizations, perform performance tests and document the improvements achieved.

VIII. **Student Learning Outcomes:**

1. Students will deploy hypervisors balancing security, performance and cost concerns
2. Students will optimize virtualization performance by documenting throughput improvements that were achieved

CS 340 Distance Education Application

- ☑ Fully Online
- ☑ Online/Classroom Hybrid (not a delivery option when campus is closed)

1a. Instructor - Student Interaction:

Students get feedback on their assignments, which are assigned every other week, including how to improve and follow best practices. In the quizzes, which are assigned every other week, students get feedback on their errors and get suggestions on how to better study. In the midterm and the final exam, students get feedback on their errors and how to improve. In the weekly threaded discussions, students must post answers to given questions/prompts and they must provide unique answers. They get feedback on their answers, how complete they are, and what they can improve on. Students get feedback on their group projects from their peers and instructor.

1b. Student - Student Interaction:

Every week, students must post responses on to a threaded discussion board based on a stated prompt. They must comment on each other. Students are placed in groups to enable them to contribute as well as read all posted messages.

1c. Student - Content Interaction:
Each week, students get a lecture in the form of video and PDF files. They may also get additional videos to explain certain concepts. Additionally, there may be supporting files and documents added to each week's content.

1d. Distance Ed Interactions:

Online class activities that promote class interaction and engagement	Brief Description	% of Online Course Hours
Discussion Boards	Students post weekly answers to questions. Instructor will provide feedback and a grade based on posting.	10.00%
Online Lecture	PowerPoint slides with animation and annotations to explain the topics covered. Videos will be presented for special topics.	20.00%
Exams	Midterm and Final Exam (2 Exams)	20.00%
Project Presentation	Students complete a final project utilizing cloud services. The instructor will be providing individual feedback for each project.	25.00%
Written assignments	Students submit written assignments and get individual feedback as well as sample solutions and general comments from the whole class.	25.00%

2. Organization of Content:
Using an online course management system, each week there will be a module instructions page which will lead students to other documents, and files in addition to the assigned work of a discussion message and an assignment/project or a quiz.

3. Assessments:

% of grade	Activity	Assessment Method
10.00%	Threaded Discussions	The Discussion board will facilitate questions and answers. Students may ask questions as well as answer them. Each week questions are posted in the Discussion board and each student is required to post a unique answer. Such answers are graded.
10.00%	Midterm	Midterm reflects the student's knowledge of the different aspects of the content covered
15.00%	Final Exam	Feedback on where the student can improve.
15.00%	Final Project	Students will get feedback on an organized final project.
30.00%	Homework Assignments	Students will be given instructional material and exercises related to the topic that is being covered. A sample solution with overall comments will be provided to all students.
20.00%	Quizzes	Students will be taking quizzes. These quizzes will help students to keep up with the class material. Students will receive answer keys for each quiz and they will be allowed to post questions on the discussion board if there is a need for clarification.

4. Instructor's Technical Qualifications:
Instructors must be well versed in the use of computers, the web, and course management systems (CMS) to interact with students through the CMS messaging boards, email, and online video and chat meetings. As per ACCJC requirements, upper-division classes must be taught by faculty who hold at least a master’s degree in Computer Science.

5. Student Support Services:
Through the syllabus, faculty will place links to library, bookstore, financial aid, disabled students center and counseling resources for students to access as needed.

6. Accessibility Requirements:
The course management system, must be Section 508 complaint as well as any videos, images, tables must be properly captioned. All PDF's and other added files and documents must be Section 508 compliant.

7. Representative Online Lesson or Activity:
In Canvas create a discussion thread that requires each student to write an R program snippet to create a data frame using two given vectors and display the duplicated elements and unique rows of the said data frame.

Prerequisite Checklist and Worksheet: CS 340

Prerequisite: Computer Science 310 – Cloud Systems Programming

SECTION 1 - CONTENT REVIEW: If any criterion is not met, the prerequisite will be disallowed.

Criterion	Met	Not Met
1. Faculty with appropriate expertise have been involved in the determination of the prerequisite, corequisite or advisory.	**x**	
2. The department in which the course is (will be) taught has considered course objectives in accordance with accreditation standards.	**x**	
3. Selection of this prerequisite, corequisite or advisory is based on tests, the type and number of examinations, and grading criteria.	**x**	
4. Selection of this prerequisite, corequisite or advisory is based on a detailed course syllabus and outline of record, related instructional materials and course format.	**x**	
5. The body of knowledge and/or skills which are necessary for success before and/or concurrent with enrollment have been specified in writing.	**x**	
6. The course materials presented in this prerequisite or corequisite have been reviewed and determined to teach knowledge or skills needed for success in the course requiring this prerequisite.	**x**	
7. The body of knowledge and/or skills necessary for success in the course have been matched with the knowledge and skills developed by the prerequisite, corequisite or advisory.	**x**	
8. The body of knowledge and/or skills taught in the prerequisite are not an instructional unit of the course requiring the prerequisite.	**x**	
9. Written documentation that steps 1 to 8 above have been taken is readily available in departmental files.	**x**	

SECTION II - ADDITIONAL LEVEL OF SCRUTINY:

X Type 2: Sequential within and across disciplines (e.g., Physics 7, 8, 9, …)
Complete the Prerequisite Worksheet

ENTRANCE SKILLS FOR **Computer Science 340 – System Virtualization**
(What the student needs to be able to do or understand BEFORE entering the course in order to be successful)

A)	Understand the basic concepts of system calls, error returns, the I/O operations and behaviors available via the system calls, and the use of available resources to uncover the details of how the system calls must be invoked and how they can be used.
B)	Develop small application programs using system calls for interprocess communications.
C)	Understand the basics of using graphs to analyze system communications interactions for synchronous and asynchronous communications.

EXIT SKILLS (objectives) FOR **Computer Science 310 – Cloud Systems Programming**
(What the student has the demonstrated ability to do or understand AFTER successful completion of this course)

1.	Understand the basic concepts of system calls, error returns, the I/O operations and behaviors available via the system calls, and the use of available resources to uncover the details of how the system calls must be invoked and how they can be used.
2.	Develop small application programs using system calls for interprocess communications.
3.	Understand the basics of using graphs to analyze system communications interactions for synchronous and asynchronous communications.

		ENTRANCE SKILLS FOR CS 340							
EXIT SKILLS FOR CS 310		A	B	C	D	E	F	G	H
	1	x							
	2		x						
	3			x					
	4								
	5								
	6								

New Course: COMPUTER SCIENCE 350, Collaboration Technologies and Tools

Units:	3.00
Total Instructional Hours (usually 18 per unit):	54.00
Hours per week (full semester equivalent) in Lecture:	3.00
In-Class Lab:	0.00
Arranged:	0.00
Outside-of-Class Hours:	108.00
Transferability:	Transfers to CSU
Degree Applicability:	Credit – Degree Applicable
Prerequisite(s):	Admission to the Bachelor degree program in Cloud Computing
Proposed Start:	Fall 2024
TOP/SAM Code:	070710 - Computer Programming / B - Advanced Occupational
Grading:	Letter Grade Only (upper div major)
Repeatability:	No
Library:	List of suggested materials has been given to Librarian
Minimum Qualification:	Computer Science
Program Impact:	Cloud Computing Bachelor's Degree

Rationale
This is a new course for the Cloud Computing Bachelor of Science Degree

I. **Catalog Description**
This course is aimed to provide students with the necessary abilities to thrive as modern information workers and valued team members. Students will obtain knowledge and practical expertise in a variety of collaborative tools through a combination of case studies, demonstrations, and hands-on activities. Collaboration, communication, connection, mobility, crowdsourcing, productivity, and messaging will all be covered in this course. Students will learn how to interact with process automation software, how to use messaging and collaboration tools effectively, how to use visual collaboration software, and how to draw insights from interactive data visualization tools. To improve problem-solving abilities and build effective communication skills, real-world scenarios, and interactive activities will be interwoven.

II. **Examples of Appropriate Text or Other Required Reading:**
(include all publication dates; for transferable courses at least one text should have been published within the last 7 years)
1. Collaboration Tools for Project Managers, 1st, Elizabeth Harrin, Project Management Institute © 2020, ISBN: 978-1628251135
2. Visual Collaboration: A Powerful Toolkit for Improving Meetings, Projects, and Processes, 1st, Loa Baastrup and Ole Qvist-Sorensen , Wiley Publishers © 2020, ISBN: 978-1119611042
3. Mastering Microsoft Teams, 1st, Melissa Hubbard and Matthew J. Bailey, Apress Publishers © 2020, ISBN: 978-1484236697
4. Cloud Computing: Concepts, Technology And Architecture, 2, Thomas Erl, Ricardo Puttini and Zaigham Mahmood, Pearson © 2023, ISBN: 978-0138052256

III. **Course Objectives**
Upon completion of this course, the student will be able to:
1. Develop skills needed to effectively drive video telephony software platforms.
2. Utilize messaging and collaboration tools
3. Develop effective teamwork and collaboration skills

IV. **Methods of Presentation:**
Lecture and Discussion, Observation and Demonstration, Discussion, Projects, Group Work, Distance Education

V. **Course Content**

% of Course	Topic
25.000%	Apply various communication techniques and strategies to convey ideas clearly and concisely to a team.

25.000%	Work collaboratively and communicate effectively by utilizing the selected collaboration tools
25.000%	Develop effective teamwork and collaboration skills by actively participating in team-based projects
25.000%	Evaluate various collaboration tools for communication, connectivity, mobility, crowd sourcing, productivity, and messaging, based on their features and project requirements.
100.000%	Total

VI. **Methods of Evaluation**

% of Course	Topic
20%	Exams/Tests
20%	Final exam
20%	Group Projects
20%	Homework
20%	Quizzes
100%	Total

VII. **Sample Assignments:**

Assignment1 - Web Scraping Automation: Utilize automation tools to create .csv files by scraping from common websites, such as Amazon product listings.

Assignment2 - Messaging: Using collaboration software, build a group collaboration site with public and private channel. Invite your project team members in and facilitate group communication.

VIII. **Student Learning Outcomes:**

1. Students will develop skills associated with the new world of work
2. Students will master the tools and technologies that foster successful collaborative teams

CS 350 Distance Education Application

- ☑ Fully Online
- ☑ Online/Classroom Hybrid (not a delivery option when campus is closed)

1a. Instructor - Student Interaction:

Students get feedback on their assignments, which are assigned every other week, including how to improve and follow best practices. In the quizzes, which are assigned every other week, students get feedback on their errors and get suggestions on how to better study. In the midterm and the final exam, students get feedback on their errors and how to improve. In the weekly threaded discussions, students must post answers to given questions/prompts and they must provide unique answers. They get feedback on their answers, how complete they are, and what they can improve on. Students get feedback on their group projects from their peers and instructor.

1b. Student - Student Interaction:

Every week, students must post responses on to a threaded discussion board based on a stated prompt. They must comment on each other. Students are placed in groups to enable them to contribute as well as read all posted messages.

1c. Student - Content Interaction:

Each week, students get a lecture in the form of video and PDF files. They may also get additional videos to explain certain concepts. Additionally, there may be supporting files and documents added to each week's content.

1d. Distance Ed Interactions:

Online class activities that promote class interaction and engagement	Brief Description	% of Online Course Hours
Discussion Boards	Students post weekly answers to questions. Instructor will provide feedback and a grade based on posting.	10.00%
Online Lecture	PowerPoint slides with animation and annotations to explain the topics covered. Videos will be presented for special topics.	20.00%

Exams	Midterm and Final Exam (2 Exams)	20.00%
Project Presentation	Students complete a final project utilizing cloud services. The instructor will be providing individual feedback for each project.	25.00%
Written assignments	Students submit written assignments and get individual feedback as well as sample solutions and general comments from the whole class.	25.00%

2. Organization of Content:
Using an online course management system, each week there will be a module instructions page which will lead students to other documents, and files in addition to the assigned work of a discussion message and an assignment/project or a quiz.

3. Assessments:

% of grade	Activity	Assessment Method
10.00%	Threaded Discussions	The Discussion board will facilitate questions and answers. Students may ask questions as well as answer them. Each week questions are posted in the Discussion board and each student is required to post a unique answer. Such answers are graded.
10.00%	Midterm	Midterm reflects the student's knowledge of the different aspects of the content covered
15.00%	Final Exam	Final Exam reflects the student's knowledge of the different aspects of the content covered
15.00%	Final Project	Students will get feedback on an organized final project.
30.00%	Homework	Students will be given instructional material and exercises related to the topic that is being covered. A sample solution with overall comments will be provided to all students.
20.00%	Quizzes	Students will be taking quizzes. These quizzes will help students to keep up with the class material. Students will receive answer keys for each quiz and they will be allowed to post questions on the discussion board if there is a need for clarification.

4. Instructor's Technical Qualifications:
Instructors must be well versed in the use of computers, the web, and course management systems (CMS) to interact with students through the CMS messaging boards, email, and online video and chat meetings. As per ACCJC requirements, upper-division classes must be taught by faculty who hold at least a master’s degree in Computer Science.

5. Student Support Services:
Through the syllabus, faculty will place links to library, bookstore, financial aid, disabled students center and counseling resources for students to access as needed.

6. Accessibility Requirements:
The course management system, must be Section 508 complaint as well as any videos, images, tables must be properly captioned. All PDF's and other added files and documents must be Section 508 compliant.

7. Representative Online Lesson or Activity:
Respond to the discussion prompt and incorporate this discussion topic into your Slack site, inviting your group members to discuss it in public and private channels.

New Course: COMPUTER SCIENCE 405, Cloud Capstone I

Units:	3.00
Total Instructional Hours (usually 18 per unit):	54.00
Hours per week (full semester equivalent) in Lecture:	3.00
In-Class Lab:	0.00
Arranged:	0.00
Outside-of-Class Hours:	108.00

Transferability:	Transfers to CSU
Degree Applicability:	Credit – Degree Applicable
Prerequisite(s):	Admission to the Bachelor degree program in Cloud Computing; CS 330
Proposed Start:	Fall 2024
TOP/SAM Code:	070710 - Computer Programming / B - Advanced Occupational
Grading:	Letter Grade Only (upper div major)
Repeatability:	No
Library:	List of suggested materials has been given to Librarian
Minimum Qualification:	Computer Science
Program Impact:	Cloud Computing Bachelor's Degree

Rationale
This is a new course for the Cloud Computing Bachelor of Science Degree.

I. **Catalog Description**
This project-oriented course is the first part of a two-semester sequence that allows students to apply their knowledge of software engineering to the design of a system to solve a real-world problem. Students investigate design alternatives and select an appropriate one, all as part of a team effort. As part of a team, students design a medium-sized, secure software application that meets all program requirements including design and formal test plan documentation.

II. **Examples of Appropriate Text or Other Required Reading:**
(include all publication dates; for transferable courses at least one text should have been published within the last 7 years)
1. Building Event-Driven Microservices : Leveraging Organizational Data at Scale, 1st, Adam Bellemare, O'Reilly Publishing © 2020, ISBN: 978-1492057895
2. Design Patterns for Cloud Native Applications, 1st, Kasun Indrasiri and Sriskandarajah Suhothayan, O'Reilly Publishing © 2022, ISBN: 978-1492090717
3. Cloud Architecture Patterns, 1st, Bill Wilder, O'Reilly Publishing © 2021, ISBN: 978-1449319779

III. **Course Objectives**
Upon completion of this course, the student will be able to:
1. Working in teams, students desing an industry-provided design challenge
2. Design a secure and fault-tolerant programming solution utilizing principles of software assurance
3. Create a formal test plan emphasizing comprehensive test cases for data and code coverage

IV. **Methods of Presentation:**
Distance Education, Lecture and Discussion, Discussion, Critique, Projects, Group Work

V. **Course Content**

% of Course	Topic
25.000%	Design a comprehensive cloud solution to a problem in a team setting with emphasis on working with a client
25.000%	Participation in a design cycle including specification, design and documentation.
25.000%	Develop project deliverables and document and plan for major milestones
25.000%	Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

100.000%	Total

VI. **Methods of Evaluation**

% of Course	Topic
30%	Final Project: Team Grade comprised of: Project Plan Presentation Documentation, Alpha Presentation, Beta Presentation
30%	Written assignments: Project documentation
30%	Oral Presentation: Design demonstration and Project video
10%	Group Projects: Threaded online discussion board postings regarding project concerns, milestones and project planning
100%	Total

VII. **Sample Assignments:**

Beta Release Milestone: Develop a minimum viable product for release to your prospective users or client. For a beta release, all (or almost all) of the main features to be implemented. Your app should be usable: no show-stopper bugs, no major crashes. It is OK if smaller features have not been implemented or bugs remain to be fixed. Cosmetic problems are OK and frankly expected. Provide this release to your prospective users or client, and ask them for feedback. Implement any new critical features they want, and fix all the bugs they find, before the RC1. Use GitHub Issues to track any feedback you receive from the users or client. For every feature request they make you will add a new enhancement Issue; for every bug they report add one bug issue. You can later decide if you will implement/fix these or not.

Testing Milestone: For this milestone you will implement and run both unit and behavioral tests. You will likely use third-party libraries and tools for creating and running your unit tests. You will also devise a method for automating some of this testing and making it part of your workflow. Research various testing tools, chose ones which fit your scenarios, learn to use them, and create and add to your repo one simple unit and one behavior test to demonstrate your progress. In unit testing you write tests which verify that your methods/functions do what you think they should do. In behavior testing, you write test code that pretends to be the user using your app. Your tests should make sure your app does what the user expects it to do, that is, what your specifications says it should. Behavior tests test the whole program.

VIII. **Student Learning Outcomes:**

1. Working in teams, students will collaborate on the design of an industry-provided design challenge
2. Students will present and evaluate design choices and identify implementation tradeoffs

CS 405 Distance Education Application

- ☑ Fully Online
- ☑ Online/Classroom Hybrid (not a delivery option when campus is closed)

1a. Instructor - Student Interaction:

Students get feedback on their individual and group projects, including how to improve and follow best practices. Feedback is from peers and instructor.

1b. Student - Student Interaction:

Every week, students must post responses to a threaded discussion board based on a stated prompt. They must comment on each other. Students are placed in groups to enable them to contribute as well as read all posted messages.

1c. Student - Content Interaction:

Each week, students get a lecture in the form of video and PDF files. They may also get additional videos to explain certain concepts. Additionally, there may be supporting files and documents added to each week's content.

1d. Distance Ed Interactions:

Online class activities that promote class interaction and engagement	Brief Description	% of Online Course Hours

Discussion Boards	Students post weekly answers to questions. Instructor will provide feedback and a grade based on posting.	10.00%
Online Lecture	PowerPoint slides with animation and annotations to explain the topics covered. Videos will be presented for special topics	15.00%
Project Presentation	Students complete a final project utilizing cloud services. The instructor will be providing individual feedback for each project.	25.00%
Written assignments	Students submit written assignments that document their project as various milestones are completed and get individual feedback as well as sample solutions and general comments from the whole class.	25.00%
Study and/or Review Sessions	Students will review other project implementations and critique the work of other teams.	25.00%

2. Organization of Content:
Using an online course management system, each week there will be a module instructions page which will lead students to other documents, and files in addition to the assigned work of a discussion message and an assignment/project or a quiz.

3. Assessments:

% of grade	Activity	Assessment Method
30.00%	Threaded Discussion	The Discussion board will facilitate questions and answers. Students may ask questions as well as answer them. Each week questions are posted in the Discussion board and each student is required to post a unique answer. Such answers are graded.
25.00%	Final Project	Students will get feedback on an organized final project.
25.00%	Group Projects	Feedback on where the student can improve.
20.00%	Individual Projects	Students will be given instructional materials and prompts related to the topic that is being covered. Each students submits a project to demonstrate their understanding of those topics.

4. Instructor's Technical Qualifications:
Instructors must be well versed in the use of computers, the web, and course management systems (CMS) to interact with students through the CMS messaging boards, email, and online video and chat meetings. As per ACCJC requirements, upper-division classes must be taught by faculty who hold at least a master’s degree in Computer Science.

5. Student Support Services:
Through the syllabus, faculty will place links to library, bookstore, financial aid, disabled students center and counseling resources for students to access as needed.

6. Accessibility Requirements:
The course management system, must be Section 508 complaint as well as any videos, images, tables must be properly captioned. All PDF's and other added files and documents must be Section 508 compliant.

7. Representative Online Lesson or Activity:
Using Teams, develop a project teams site, enable access for all your team members and organize project milestones into meaningful chunks of work for each team member.

Prerequisite Checklist and Worksheet: CS 405

Prerequisite: Computer Science 330 – Cloud Operations Technologies and Tools

SECTION 1 - CONTENT REVIEW: If any criterion is not met, the prerequisite will be disallowed.

Criterion	Met	Not Met
1. Faculty with appropriate expertise have been involved in the determination of the prerequisite, corequisite or advisory.	**x**	
2. The department in which the course is (will be) taught has considered course objectives in accordance with accreditation standards.	**x**	
3. Selection of this prerequisite, corequisite or advisory is based on tests, the type and number of examinations, and grading criteria.	**x**	
4. Selection of this prerequisite, corequisite or advisory is based on a detailed course syllabus and outline of record, related instructional materials and course format.	**x**	
5. The body of knowledge and/or skills which are necessary for success before and/or concurrent with enrollment have been specified in writing.	**x**	
6. The course materials presented in this prerequisite or corequisite have been reviewed and determined to teach knowledge or skills needed for success in the course requiring this prerequisite.	**x**	
7. The body of knowledge and/or skills necessary for success in the course have been matched with the knowledge and skills developed by the prerequisite, corequisite or advisory.	**x**	
8. The body of knowledge and/or skills taught in the prerequisite are not an instructional unit of the course requiring the prerequisite.	**x**	
9. Written documentation that steps 1 to 8 above have been taken is readily available in departmental files.	**x**	

SECTION II - ADDITIONAL LEVEL OF SCRUTINY:

X Type 2: Sequential within and across disciplines (e.g., Physics 7, 8, 9, …)
Complete the Prerequisite Worksheet

ENTRANCE SKILLS FOR **Computer Science 405 – Cloud Capstone I**
(What the student needs to be able to do or understand BEFORE entering the course in order to be successful)

A)	Understand the importance of infrastructure-as-code to help automate, monitor and manage cloud systems
B)	Build effective continuous integration/continuous deployment strategies using available cloud tools and services

EXIT SKILLS (objectives) FOR **Computer Science 330 – Cloud Operations Technologies and Tools**
(What the student has the demonstrated ability to do or understand AFTER successful completion of this course)

1.	Understand the importance of infrastructure-as-code to help automate, monitor and manage cloud systems
2.	Build effective continuous integration/continuous deployment strategies using available cloud tools and services

		ENTRANCE SKILLS FOR CS 405							
EXIT SKILLS FOR CS 330		A	B	C	D	E	F	G	H
	1	x							
	2		x						
	3								
	4								
	5								
	6								
	7								
	8								

New Course: COMPUTER SCIENCE 410, Cloud Capstone II

Units:	3.00
Total Instructional Hours (usually 18 per unit):	54.00
Hours per week (full semester equivalent) in Lecture:	3.00
In-Class Lab:	0.00
Arranged:	0.00
Outside-of-Class Hours:	108.00

Transferability:	Transfers to CSU
Degree Applicability:	Credit – Degree Applicable
Prerequisite(s):	Admission to the Bachelor degree program in Cloud Computing; CS 405
Proposed Start:	Fall 2024
TOP/SAM Code:	070710 - Computer Programming / B - Advanced Occupational
Grading:	Letter Grade Only (upper div major)
Repeatability:	No
Library:	List of suggested materials has been given to Librarian
Minimum Qualification:	Computer Science
Program Impact:	Cloud Computing Bachelor's degree

Rationale
This is a new course for the Cloud Computing Bachelor of Science Degree.

I. **Catalog Description**
This project-oriented course is the second part of a two-semester sequence that allows students to apply their knowledge of software engineering to implement a system to solve a real-world problem. Students implement a solution and verify and validate the result, all as part of a team effort. As part of a team, students successfully develop a medium-sized, secure software application that meets all program requirements.

II. **Examples of Appropriate Text or Other Required Reading:**
(include all publication dates; for transferable courses at least one text should have been published within the last 7 years)
1. Building Event-Driven Microservices : Leveraging Organizational Data at Scale, 1st, Adam Bellemare, O'Reilly Publishing © 2020
2. Design Patterns for Cloud Native Applications, 1st, Kasun Indrasiri and Sriskandarajah Suhothayan, O'Reilly Publishing © 2022
3. Cloud Architecture Patterns, 1st, Bill Wilder, O'Reilly Publishing © 2021

III. **Course Objectives**
Upon completion of this course, the student will be able to:
1. Working in teams, students implement an industry-provided challenge.
2. Develop a secure and fault-tolerant programming solution utilizing principles of software assurance.
3. Execute comprehensive tests that will perform complete data and code coverage

IV. **Methods of Presentation:**
Distance Education, Lecture and Discussion, Discussion, Projects, Group Work

V. **Course Content**

% of Course	Topic
30.000%	Development of a comprehensive software solution to a problem in a team setting with emphasis on working with a client.
30.000%	Develop project deliverables and document and plan for major milestones
40.000%	Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
100.000%	Total

VI. **Methods of Evaluation**

% of Course	Topic
30%	Final Project: Team Grade comprised of: Project Plan Presentation, Alpha Presentation and Beta Presentation
30%	Written assignments: Project documentation
30%	Oral Presentation: Prototype demonstration and Project video
10%	Group Projects: Online threaded discussion boards regarding implementation details, bugs, milestones and other project concerns
100%	Total

VII. **Sample Assignments:**

Testing Milestone: For this milestone you will implement and run both unit and behavioral tests. You will likely use third-party libraries and tools for creating and running your unit tests. You will also devise a method for automating some of this testing and making it part of your workflow. Research various testing tools, chose ones which fit your scenarios, learn to use them, and create and add to your repo one simple unit and one behavior test to demonstrate your progress. In unit testing you write tests which verify that your methods/functions do what you think they should do. In behavior testing, you write test code that pretends to be the user using your app. Your tests should make sure your app does what the user expects it to do, that is, what your specifications says it should. Behavior tests test the whole program.

Project Video Demo: Every team member must take part in the final presentation/demo video. You can take turns, or alternate, as you see fit. The complete video presentation must be no longer than 15 minutes, shoot for somewhere between 10 and 15 minutes. Be sure to introduce your team, explain the problem/use-case your app is meant to solve. Describe how users do things now, without your app. Specify the goals of your app and which user pain points are you addressing. Mention the technologies you used in building and deploying your app. Give some details into how they fit together. Demo to show the major features. Make sure you explain what you are doing as you tap on buttons. Make sure we can see what you are doing, and the results

VIII. **Student Learning Outcomes:**

1. Students will collaborate on the implementation of an industry-provided challenge
2. Students will present and evaluate their implementation choices and tradeoffs

CS 410 Distance Education Application

- ☑ Fully Online
- ☑ Online/Classroom Hybrid (not a delivery option when campus is closed)

1a. Instructor - Student Interaction:

Students get feedback on their individual and group projects including how to improve and follow best practices. Feedback is provided by their peers and instructor.

1b. Student - Student Interaction:

Every week, students must post responses on to a threaded discussion board based on a stated prompt. They must comment on each other. Students are placed in groups to enable them to contribute as well as read all posted messages.

1c. Student - Content Interaction:

Each week, students get a lecture in the form of video and PDF files. They may also get additional videos to explain certain concepts. Additionally, there may be supporting files and documents added to each week's content.

1d. Distance Ed Interactions:

Online class activities that promote class interaction and engagement	Brief Description	% of Online Course Hours
Discussion Boards	Students post weekly answers to questions. Instructor will provide feedback and a grade based on posting.	10.00%
Online Lecture	PowerPoint slides with animation and annotations to explain the topics covered. Videos will be presented for special topics	20.00%

Project Presentation	Students complete a final project utilizing cloud services. The instructor will be providing individual feedback for each project.	25.00%
Written assignments	Students submit projects that document the various milestones of their work. They get individual feedback as well as samples and general comments from the whole class.	25.00%
Study and/or Review Sessions	Students will review other project implementations and critique the work of other teams.	20.00%

2. Organization of Content:
Using an online course management system, each week there will be a module instructions page which will lead students to other documents, and files in addition to the assigned work of a discussion message and an assignment/project or a quiz.

3. Assessments:

% of grade	Activity	Assessment Method
25.00%	Final Project	Students will get feedback on an organized final project.
30.00%	Threaded Discussion	The Discussion board will facilitate questions and answers. Students may ask questions as well as answer them. Each week questions are posted in the Discussion board and each student is required to post a unique answer. Such answers are graded.
25.00%	Group Projects	Feedback on where the student can improve, in terms of the work done, presentation and how well students work with each other.
20.00%	Individual Projects	Students will be given instructional material and prompts related to the topic that is being covered. Each student submits a project to demonstrate their understand of those topics.

4. Instructor's Technical Qualifications:
Instructors must be well versed in the use of computers, the web, and course management systems (CMS) to interact with students through the CMS messaging boards, email, and online video and chat meetings. As per ACCJC requirements, upper-division classes must be taught by faculty who hold at least a master’s degree in Computer Science.

5. Student Support Services:
Through the syllabus, faculty will place links to library, bookstore, financial aid, disabled students center and counseling resources for students to access as needed.

6. Accessibility Requirements:
The course management system, must be Section 508 complaint as well as any videos, images, tables must be properly captioned. All PDF's and other added files and documents must be Section 508 compliant.

7. Representative Online Lesson or Activity:
Using Teams, develop a project teams site, enable access for all your team members and organize project milestones into meaningful chunks of work for each team member.

Prerequisite Checklist and Worksheet: CS 410
Prerequisite: Computer Science 405 – Cloud Capstone I

SECTION 1 - CONTENT REVIEW: If any criterion is not met, the prerequisite will be disallowed.

Criterion	Met	Not Met
1. Faculty with appropriate expertise have been involved in the determination of the prerequisite, corequisite or advisory.	**x**	
2. The department in which the course is (will be) taught has considered course objectives in accordance with accreditation standards.	**x**	
3. Selection of this prerequisite, corequisite or advisory is based on tests, the type and number of examinations, and grading criteria.	**x**	
4. Selection of this prerequisite, corequisite or advisory is based on a detailed course syllabus and outline of record, related instructional materials and course format.	**x**	
5. The body of knowledge and/or skills which are necessary for success before and/or concurrent with enrollment have been specified in writing.	**x**	
6. The course materials presented in this prerequisite or corequisite have been reviewed and determined to teach knowledge or skills needed for success in the course requiring this prerequisite.	**x**	
7. The body of knowledge and/or skills necessary for success in the course have been matched with the knowledge and skills developed by the prerequisite, corequisite or advisory.	**x**	
8. The body of knowledge and/or skills taught in the prerequisite are not an instructional unit of the course requiring the prerequisite.	**x**	
9. Written documentation that steps 1 to 8 above have been taken is readily available in departmental files.	**x**	

SECTION II - ADDITIONAL LEVEL OF SCRUTINY:

X Type 2: Sequential within and across disciplines (e.g., Physics 7, 8, 9, …)
Complete the Prerequisite Worksheet

ENTRANCE SKILLS FOR **Computer Science 410 – Cloud Capstone II**
(What the student needs to be able to do or understand BEFORE entering the course in order to be successful)

A)	Working in teams, student implement an industry provided design challenge
B)	Design and develop a secure and fault-tolerant programming solution utilizing principles of software assurance

EXIT SKILLS (objectives) FOR **Computer Science 405 – Cloud Capstone I**
(What the student has the demonstrated ability to do or understand AFTER successful completion of this course)

1.	Working in teams, student implement an industry provided design challenge
2.	Design and develop a secure and fault-tolerant programming solution utilizing principles of software assurance

		ENTRANCE SKILLS FOR CS 410							
		A	B	C	D	E	F	G	H
EXIT SKILLS FOR CS 405	1	X							
	2		X						
	3								
	4								
	5								
	6								
	7								
	8								

New Course: COMPUTER SCIENCE 440, Cloud Patterns

Units:	3.00
Total Instructional Hours (usually 18 per unit):	54.00
Hours per week (full semester equivalent) in Lecture:	3.00
In-Class Lab:	0.00
Arranged:	0.00
Outside-of-Class Hours:	108.00
Transferability:	Transfers to CSU
Degree Applicability:	Credit – Degree Applicable
Prerequisite(s):	Admission to the Bachelor degree program in Cloud Computing; CS 330
Proposed Start:	Fall 2024
TOP/SAM Code:	070710 - Computer Programming / B - Advanced Occupational
Grading:	Letter Grade Only (upper div major)
Repeatability:	No
Library:	List of suggested materials has been given to Librarian
Minimum Qualification:	Computer Science
Program Impact:	Cloud Computing Bachelor's Degree

Rationale
This is a new course for the Cloud Computing Bachelor of Science Degree

I. **Catalog Description**
This course provides an in-depth look at design patterns and best practices for creating scalable, resilient, and efficient cloud-native environments. Students will gain a thorough understanding of cloud design patterns and their critical role in addressing common business IT challenges. Students will learn how to apply design patterns in a streamlined and repeatable process, allowing them to build robust cloud-native solutions. Students will take a look at microservices architecture, learning about the benefits of designing loosely coupled applications with independently deployable cloud services.

II. **Examples of Appropriate Text or Other Required Reading:**
(include all publication dates; for transferable courses at least one text should have been published within the last 7 years)
1. Systems Performance : Enterprise and the Cloud, 2nd, Brendan Gregg, Pearson © 2020, ISBN: 978-0136820154
2. Design Patterns for Cloud Native Applications: Patterns in Practice Using APIs, Data, Events, and Streams, 1st Edition, Kasun Indrasiri, Sriskandarajah Suhothayan, O'Reilly © 2021, ISBN: 978-1449319779
3. Cloud Native Patterns: Designing Change-Tolerant Software, Cornelia Davis, Manning © 2019, ISBN: 978-1617294297
4. Cloud Computing: Concepts, Technology And Architecture, 2, Thomas Erl, Ricardo Puttini and Zaigham Mahmood, Pearson © 2023, ISBN: 978-0138052256

III. **Course Objectives**
Upon completion of this course, the student will be able to:
1. Evaluate different cloud design patterns and their practical applications
2. Create scalable, resilient, and efficient cloud-native applications through the use of various cloud patterns
3. Design and manage highly scalable and event-driven applications

IV. **Methods of Presentation:**
Lecture and Discussion, Observation and Demonstration, Discussion, Projects, Group Work, Distance Education

V. **Course Content**

% of Course	Topic
25.000%	Apply a range of architectural approaches essential for developing cloud solutions for business IT infrastructure.

25.000%	Apply their insights into making informed cloud design choices concerning storage, computing, and networking to construct intricate architectures tailored to specific use cases.
25.000%	design and implement loosely coupled services in cloud-native architectures by applying appropriate patterns and principles.
25.000%	Analyze cloud architectures and identify areas of potential cost and performance improvement
100.000%	Total

VI. **Methods of Evaluation**

% of Course	Topic
20%	Exams/Tests
20%	Final exam
20%	Group Projects
20%	Homework
20%	Quizzes
100%	Total

VII. **Sample Assignments:**

Assignment 1: Cloud Design Patterns Analysis: In this assignment, you will analyze real-world business scenarios and apply cloud design patterns. Choose a scenario where scalability, resilience, or efficiency is crucial. Research and identify at least three cloud design patterns to address the challenges. Compare and contrast the patterns, recommending the most suitable one for the scenario. Present your findings in a professional report format.

Assignment 2: Microservices Architecture Implementation: In this assignment, design and implement microservices for a monolithic application. Select a suitable application and plan a decomposition strategy. Design and implement microservices using relevant technologies. Create a sample application to showcase their functionality. Test the microservices and prepare a presentation on your design and implementation approach.

VIII. **Student Learning Outcomes:**

1. Students will analyze real-world scenarios, identify appropriate cloud design patterns, and apply them to develop scalable, resilient, and efficient cloud-native solutions.
2. Students will design and implement microservices architecture by creating modular, loosely coupled, and independently deployable applications

CS 440 Distance Education Application

- ☑ Fully Online
- ☑ Online/Classroom Hybrid (not a delivery option when campus is closed)

1a. Instructor - Student Interaction:

Students get feedback on their assignments, which are assigned every other week, including how to improve and follow best practices. In the quizzes, which are assigned every other week, students get feedback on their errors and get suggestions on how to better study. In the midterm and the final exam, students get feedback on their errors and how to improve. In the weekly threaded discussions, students must post answers to given questions/prompts and they must provide unique answers. They get feedback on their answers, how complete they are, and what they can improve on. Students get feedback on their group projects from their peers and instructor.

1b. Student - Student Interaction:

Every week, students must post responses on to a threaded discussion board based on a stated prompt. They must comment on each other. Students are placed in groups to enable them to contribute as well as read all posted messages.

1c. Student - Content Interaction:

Each week, students get a lecture in the form of video and PDF files. They may also get additional videos to explain certain concepts. Additionally, there may be supporting files and documents added to each week's content.

1d. Distance Ed Interactions:

Online class activities that promote class interaction and engagement	Brief Description	% of Online Course Hours
Discussion Boards	Students post weekly answers to questions. Instructor will provide feedback and a grade based on posting.	20.00%
Online Lecture	PowerPoint slides with animation and annotations to explain the topics covered. Videos will be presented for special topics.	20.00%
Exams	Midterm and Final Exam (2 Exams)	20.00%
Project Presentation	Students complete a final project utilizing cloud services. The instructor will be providing individual feedback for each project.	20.00%
Written assignments	Students submit written assignments and get individual feedback as well as sample solutions and general comments from the whole class.	20.00%

2. Organization of Content:

Using an online course management system, each week there will be a module instructions page which will lead students to other documents, and files in addition to the assigned work of a discussion message and an assignment/project or a quiz.

3. Assessments:

% of grade	Activity	Assessment Method
10.00%	Threaded Discussions	The Discussion board will facilitate questions and answers. Students may ask questions as well as answer them. Each week questions are posted in the Discussion board and each student is required to post a unique answer. Such answers are graded.
10.00%	Midterm	Midterm reflects the student's knowledge of the different aspects of the content covered
15.00%	Final Exam	Final Exam reflects the student's knowledge of the different aspects of the content covered
15.00%	Final Project	Students will get feedback on an organized final project.
30.00%	Homework	Students will be given instructional material and exercises related to the topic that is being covered. A sample solution with overall comments will be provided to all students.
20.00%	Homework Assignments	Students will be taking quizzes. These quizzes will help students to keep up with the class material. Students will receive answer keys for each quiz and they will be allowed to post questions on the discussion board if there is a need for clarification.

4. Instructor's Technical Qualifications:

Instructors must be well versed in the use of computers, the web, and course management systems (CMS) to interact with students through the CMS messaging boards, email, and online video and chat meetings. As per ACCJC requirements, upper-division classes must be taught by faculty who hold at least a master’s degree in Computer Science.

5. Student Support Services:

Through the syllabus, faculty will place links to library, bookstore, financial aid, disabled students center and counseling resources for students to access as needed.

6. Accessibility Requirements:

The course management system, must be Section 508 complaint as well as any videos, images, tables must be properly captioned. All PDF's and other added files and documents must be Section 508 compliant.

7. Representative Online Lesson or Activity:

In Canvas create a discussion thread that requires each student to write an R program snippet to create a data frame using two given vectors and display the duplicated elements and unique rows of the said data frame.

Prerequisite Checklist and Worksheet: CS 440

Prerequisite: Computer Science 330 – Cloud Operations Technologies and Tools

SECTION 1 - CONTENT REVIEW: If any criterion is not met, the prerequisite will be disallowed.

Criterion	Met	Not Met
1. Faculty with appropriate expertise have been involved in the determination of the prerequisite, corequisite or advisory.	**x**	
2. The department in which the course is (will be) taught has considered course objectives in accordance with accreditation standards.	**x**	
3. Selection of this prerequisite, corequisite or advisory is based on tests, the type and number of examinations, and grading criteria.	**x**	
4. Selection of this prerequisite, corequisite or advisory is based on a detailed course syllabus and outline of record, related instructional materials and course format.	**x**	
5. The body of knowledge and/or skills which are necessary for success before and/or concurrent with enrollment have been specified in writing.	**x**	
6. The course materials presented in this prerequisite or corequisite have been reviewed and determined to teach knowledge or skills needed for success in the course requiring this prerequisite.	**x**	
7. The body of knowledge and/or skills necessary for success in the course have been matched with the knowledge and skills developed by the prerequisite, corequisite or advisory.	**x**	
8. The body of knowledge and/or skills taught in the prerequisite are not an instructional unit of the course requiring the prerequisite.	**x**	
9. Written documentation that steps 1 to 8 above have been taken is readily available in departmental files.	**x**	

SECTION II - ADDITIONAL LEVEL OF SCRUTINY:

X Type 2: Sequential within and across disciplines (e.g., Physics 7, 8, 9, …)
Complete the Prerequisite Worksheet

ENTRANCE SKILLS FOR **Computer Science 440 – Cloud Patterns**
(What the student needs to be able to do or understand BEFORE entering the course in order to be successful)

A)	Understand the importance of infrastructure-as-code to help automate, monitor and manage cloud systems
B)	Build effective continuous integration/continuous deployment strategies using available cloud tools and services

EXIT SKILLS (objectives) FOR **Computer Science 330 – Cloud Operations Technologies and Tools**
(What the student has the demonstrated ability to do or understand AFTER successful completion of this course)

1.	Understand the importance of infrastructure-as-code to help automate, monitor and manage cloud systems
2.	Build effective continuous integration/continuous deployment strategies using available cloud tools and services

		ENTRANCE SKILLS FOR CS 440							
		A	B	C	D	E	F	G	H
EXIT SKILLS FOR CS 330	1	X							
	2		X						
	3								
	4								
	5								
	6								
	7								
	8								

New Course: COMPUTER SCIENCE 450, Cloud Certification Bootcamp

Units:	3.00
Total Instructional Hours (usually 18 per unit):	54.00
Hours per week (full semester equivalent) in Lecture:	3.00
In-Class Lab:	0.00
Arranged:	0.00
Outside-of-Class Hours:	108.00

Transferability:	Transfers to CSU
Degree Applicability:	Credit – Degree Applicable
Prerequisite(s):	Admission to the Bachelor degree program in Cloud Computing; CS 330
Proposed Start:	Fall 2024
TOP/SAM Code:	070710 - Computer Programming / B - Advanced Occupational
Grading:	Letter Grade Only (upper div major)
Repeatability:	No
Library:	List of suggested materials has been given to Librarian
Minimum Qualification:	Computer Science
Program Impact:	Cloud Computing Bachelor's Degree

Rationale
This is a new course for the Cloud Computing Bachelor of Science Degree.

I. **Catalog Description**
In this course, students prepare to earn an industry-recognized credential in cloud computing. Students will prepare for and complete student guides, practice exams and other materials.

II. **Examples of Appropriate Text or Other Required Reading:**
(include all publication dates; for transferable courses at least one text should have been published within the last 7 years)

1. Cloud Computing Solutions Architect : A Hands-On Approach, 1st, Arshdeep Bahga and Vijay Madisetti, VPT Publishers © 2019, ISBN: 978-0996025591
2. Cloud Computing: Concepts, Technology And Architecture, 2, Thomas Erl, Ricardo Puttini and Zaigham Mahmood, Pearson © 2023, ISBN: 978-0138052256
3. Solutions Architect Certification Exam Guide https://d1.awsstatic.com/training-and-certification/docs-sa-pro/AWS-Certified-Solutions-Architect-Professional_Exam-Guide.pdf

III. **Course Objectives**
Upon completion of this course, the student will be able to:

1. Identify an industry-recognized certification exam
2. Apply the appropriate techniques of testing taking for an industry-recognized certification exam
3. Register for and complete a certification exam

IV. **Methods of Presentation:**
Lecture and Discussion, Projects, Group Work, Online instructor-provided resources, Distance Education

V. **Course Content**

% of Course	Topic
25.000%	Design for continuous improvement of existing solutions by demonstrating knowledge of remediation strategies, disaster recovery planning, monitoring and logging solutions and engineering failure scenario activities to support and exercise an understanding of recovery actions
25.000%	Design cloud solutions for new deployments that demonstrate knowledge of infrastructure as code, continuous integration/continuous delivery (CI/CD), change management processes and configuration management tools
25.000%	Design for organizational complexity which demonstrates knowledge of global infrastructure, networking concepts and different connectivity options

25.000%	Complete a sample certification prep exam
100.000%	Total

VI. **Methods of Evaluation**

% of Course	Topic
25%	Final Project
25%	Homework
25%	Quizzes
25%	Class Work
100%	Total

VII. **Sample Assignments:**

Troubleshoot network connectivity issues: Troubleshooting basic network connectivity issues is an important skill. This troubleshooting scenario is an opportunity to assess your skills in this area. In this lab scenario, a colleague has deployed a VPC and instances, but there are a few things wrong. `Instance3` is not able to connect to the internet and your goal is to determine why. Troubleshoot the issue and ensure the instance has connectivity to the internet, so that you can ping and log in to the instance using SSH. Identify and fix the issues that are preventing the instance from connecting to the Internet.

Migrate data to the cloud in a cost effective manner: As the Senior Solutions Architect, you have have been tasked with optimizing the data transfer to more cost-effective solutions. You have identified the cost savings of moving a MySQL database currently running on an EC2 instance to an RDS Aurora MySQL instance. Use the Database Migrations Service (DMS) to migrate a MySQL database from an EC2 server to an RDS Aurora MySQL database.

Complete Practice Exams: Complete sample practice exams and develop strategies for answering complex multi-part questions that are common on the exam

VIII. **Student Learning Outcomes:**

1. Students will prepare for an industry-recognized certification exam
2. Students will complete an industry-recognized certification exam

CS 450 Distance Education Application

- ☑ Fully Online
- ☑ Online/Classroom Hybrid (not a delivery option when campus is closed)

1a. Instructor - Student Interaction:

Students get feedback on their assignments, which are assigned every other week, including how to improve and follow best practices. In the quizzes, which are assigned every other week, students get feedback on their errors and get suggestions on how to better study. On the quizzes, students get feedback on their errors and how to improve. In the weekly threaded discussions, students must post answers to given questions/prompts and they must provide unique answers. They get feedback on their answers, how complete they are, and what they can improve on.

1b. Student - Student Interaction:

Every week, students must post responses on to a threaded discussion board based on a stated prompt. They must comment on each other. Students are placed in groups to enable them to contribute as well as read all posted messages.

1c. Student - Content Interaction:

Each week, students get a lecture in the form of video and PDF files. They may also get additional videos to explain certain concepts. Additionally, there may be supporting files and documents added to each week's content.

1d. Distance Ed Interactions:

Online class activities that promote class interaction and engagement	Brief Description	% of Online Course Hours

Discussion Boards	Students post weekly answers to questions. Instructor will provide feedback and a grade based on posting.	25.00%
Exams	Sample practice certification exam preparation.	25.00%
Online Lecture	PowerPoint slides with animation and annotations to explain the topics covered. Videos will be presented for special topics	25.00%
Written assignments	Students submit written assignments and get individual feedback as well as sample solutions and general comments from the whole class.	25.00%

2. Organization of Content:
Using an online course management system, each week there will be a module instructions page which will lead students to other documents, and files in addition to the assigned work of a discussion message and an assignment/project or a quiz.

3. Assessments:

% of grade	Activity	Assessment Method
25.00%	Threaded Discussions	The Discussion board will facilitate questions and answers. Students may ask questions as well as answer them. Each week questions are posted in the Discussion board and each student is required to post a unique answer. Such answers are graded.
25.00%	Final Exam	Final Exam reflects the student's knowledge of the different aspects of the content covered
25.00%	Homework	Students will be given instructional material and exercises related to the topic that is being covered. A sample solution with overall comments will be provided to all students.
25.00%	Quizzes	Students will be taking quizzes. These quizzes will help students to keep up with the class material. Students will receive answer keys for each quiz and they will be allowed to post questions on the discussion board if there is a need for clarification.

4. Instructor's Technical Qualifications:
Instructors must be well versed in the use of computers, the web, and course management systems (CMS) to interact with students through the CMS messaging boards, email, and online video and chat meetings. As per ACCJC requirements, upper-division classes must be taught by faculty who hold at least a master’s degree in Computer Science.

5. Student Support Services:
Through the syllabus, faculty will place links to library, bookstore, financial aid, disabled students center and counseling resources for students to access as needed.

6. Accessibility Requirements:
The course management system, must be Section 508 complaint as well as any videos, images, tables must be properly captioned. All PDF's and other added files and documents must be Section 508 compliant.

7. Representative Online Lesson or Activity:
Respond to the discussion forum prompt that includes a sample complex multi-part sample certification exam question. Critique the different approaches and solutions offered by classmates.

Prerequisite Checklist and Worksheet: CS 450

Prerequisite: Computer Science 330 – Cloud Operations Technologies and Tools

SECTION 1 - CONTENT REVIEW: If any criterion is not met, the prerequisite will be disallowed.

Criterion	Met	Not Met
1. Faculty with appropriate expertise have been involved in the determination of the prerequisite, corequisite or advisory.	x	
2. The department in which the course is (will be) taught has considered course objectives in accordance with accreditation standards.	x	
3. Selection of this prerequisite, corequisite or advisory is based on tests, the type and number of examinations, and grading criteria.	x	
4. Selection of this prerequisite, corequisite or advisory is based on a detailed course syllabus and outline of record, related instructional materials and course format.	x	
5. The body of knowledge and/or skills which are necessary for success before and/or concurrent with enrollment have been specified in writing.	x	
6. The course materials presented in this prerequisite or corequisite have been reviewed and determined to teach knowledge or skills needed for success in the course requiring this prerequisite.	x	
7. The body of knowledge and/or skills necessary for success in the course have been matched with the knowledge and skills developed by the prerequisite, corequisite or advisory.	x	
8. The body of knowledge and/or skills taught in the prerequisite are not an instructional unit of the course requiring the prerequisite.	x	
9. Written documentation that steps 1 to 8 above have been taken is readily available in departmental files.	x	

SECTION II - ADDITIONAL LEVEL OF SCRUTINY:

X Type 2: Sequential within and across disciplines (e.g., Physics 7, 8, 9, …)
Complete the Prerequisite Worksheet

ENTRANCE SKILLS FOR **Computer Science 450 – Certification Bootcamp**
(What the student needs to be able to do or understand BEFORE entering the course in order to be successful)

A)	Understand the importance of infrastructure-as-code to help automate, monitor and manage cloud systems
B)	Build effective continuous integration/continuous deployment strategies using available cloud tools and services

EXIT SKILLS (objectives) FOR **Computer Science 330 – Cloud Operations Technologies and Tools**
(What the student has the demonstrated ability to do or understand AFTER successful completion of this course)

1.	Understand the importance of infrastructure-as-code to help automate, monitor and manage cloud systems
2.	Build effective continuous integration/continuous deployment strategies using available cloud tools and services

		ENTRANCE SKILLS FOR CS 450							
EXIT SKILLS FOR CS 330		A	B	C	D	E	F	G	H
	1	X							
	2		X						
	3								
	4								
	5								
	6								
	7								
	8								

New Course: MEDIA STUDIES 310, Race, Gender, and Computing

Units:	3.00
Total Instructional Hours (usually 18 per unit):	54.00
Hours per week (full semester equivalent) in Lecture:	3.00
In-Class Lab:	0.00
Arranged:	0.00
Outside-of-Class Hours:	108.00
Transferability:	Transfers to CSU
Degree Applicability:	Credit – Degree Applicable
Prerequisite(s):	Admission to the Bachelor degree program in Cloud Computing
Proposed Start:	Fall 2024
TOP/SAM Code:	060100 - Media and Communications, General / B - Advanced Occupational
Grading:	Letter Grade or P/NP
Repeatability:	No
Library:	List of suggested materials has been given to Librarian
Minimum Qualification:	Mass Communication
Program Impact:	Cloud Computing Bachelor's Degree

Rationale
Once approved, this course will be offered as an upper-division elective in the Cloud Computing BA program at SMC.

I. **Catalog Description**
This course explores issues of race, gender, diversity, equity, and inclusion in the fields of computing and related technology. Students will explore the influence of distinct social factors upon the evolution of computing, and the subsequent impact on various individuals. Additionally, the course introduces the notion of cultural competence within the context of computing.

II. **Examples of Appropriate Text or Other Required Reading:**
(include all publication dates; for transferable courses at least one text should have been published within the last 7 years)
1. Race After Technology: Abolitionist Tools for the New Jim Code, 1st, Ruha Benjamin, Polity © 2019, ISBN: 978-1509526406
2. A People's History of Computing in the United States, Joy Lisi Rankin, Harvard University Press © 2020, ISBN: 978-0674970977
3. We Are Data: Algorithms and the Making of Our Digital Selves, John Cheney-Lippold, NYU Press © 2020, ISBN: 978-1479808700

III. **Course Objectives**
Upon completion of this course, the student will be able to:
1. Critically evaluate the historical contributions and experiences of underrepresented groups in computing, discerning the challenges and barriers these groups encountered.
2. Articulate a comprehensive understanding of the issues surrounding the underrepresentation of women, people of color, and marginalized groups within the technology industry, and the resulting social dynamics.
3. Critically analyze the impacts of biased algorithms and artificial intelligence systems on marginalized communities and propose potential solutions.
4. Understand ethical dilemmas related to race, gender, and technology, including privacy, surveillance, data ethics, and responsible technological innovation.

IV. **Methods of Presentation:**
Lecture and Discussion, Discussion, Group Work, Critique, Distance Education, Observation and Demonstration, Projects, Visiting Lecturers

V. **Course Content**

% of Course	Topic
15.000%	Historical contributions of underrepresented groups to computing and technology

15.000%	Analyze how race, gender, and other identities influence and shape the design, development, and use of technology
25.000%	Discerning the challenges and barriers experienced by underrepresented groups in computing and technology (includes exploration of gender, racial, ethnic, socioeconomic and disability issues)
15.000%	strategies to address and mitigate algorithmic biases
15.000%	Ethical dilemmas related to race, gender, and technology, including privacy, surveillance, data ethics, and responsible technological innovation.
15.000%	Ways in which individuals and communities have used technology to address social injustices, promote equity, and effect positive change
100.000%	Total

VI. **Methods of Evaluation**

% of Course	Topic
5%	Class Participation
20%	Homework
25%	Final exam
25%	Papers
25%	Written assignments
100%	Total

VII. **Sample Assignments:**

Historical Perspectives Presentation: Objective: Demonstrate an understanding of the historical contributions and challenges faced by underrepresented groups in computing. Task: Choose a historical figure or event related to underrepresented groups in computing. Research their contributions or experiences and create a multimedia presentation. Discuss their impact on the field and the challenges they encountered. Highlight the significance of their work within the broader context of diversity and equity in technology.

Bias in Algorithms Analysis: Objective: Analyze the social and cultural implications of bias in algorithms and AI systems. Task: Select an algorithm or AI system that has been critiqued for bias. Investigate its design and deployment, considering how race, gender, or other identities are affected. Write a comprehensive analysis of the bias present, its implications on various communities, and propose strategies to mitigate or rectify the bias for more equitable outcomes.

Inclusive Design Project: Objective: Design strategies to promote representation and inclusion within the technology industry. Task: Identify a specific area within the technology sector where representation and inclusion are lacking, such as leadership roles or product design. Develop a comprehensive plan outlining actionable steps that organizations can take to address the issue. Include a rationale for each step, integrating insights from course materials and real-world examples.

Ethical Technology Dilemmas Debate: Objective: Engage in critical discussions on ethical dilemmas related to race, gender, and technology. Task: Research and select a contemporary ethical dilemma at the intersection of technology and social identity. Divide the class into groups representing different viewpoints. Conduct a structured debate where each group presents arguments, counters, and supporting evidence. The goal is to critically examine the ethical considerations while proposing possible solutions that align with equity and social justice.

VIII. **Student Learning Outcomes:**

1. Students will be able to analyze the ways in which race, gender, and other identities currently and historically influence and shape the design, development, and use of technology.
2. Students will be able to discern and evaluate the impacts of representation and inclusion issues in the technology industry, upon women, people of color, and other marginalized groups in society.

MEDIA 310 Distance Education Application

☑ Fully Online
☑ Online/Classroom Hybrid (not a delivery option when campus is closed)

1a. Instructor - Student Interaction:
The instructor will provide frequent, individual feedback on all discussions and assignments, and engage with students as the instructor sees fit using email, pronto, gradebook comments, discussion posts, voice memos, etc.

1b. Student - Student Interaction:
Online versions of the course will use asynchronous discussion forums, and also have the option of using pronto. Many classes may choose to use discord servers to interact with each other as well. The instructor will openly encourage such interactions and will provide a forum in which they can occur.

1c. Student - Content Interaction:
Discussion boards, videos, formative and evaluative quizzes, and group projects will all be emphasized.

1d. Distance Ed Interactions:

Online class activities that promote class interaction and engagement	Brief Description	% of Online Course Hours
Discussion Boards	Weekly discussion board to facilitate question/answering, as well as providing feedback or commenting on postings. Each week, students must address a main discussion topic.	20.00%
Online Lecture	Lectures in the format of PDF slides as well as videos from the web and instructor-recorded.	20.00%
Videos	Videos will cover recent news topics ot add more real-life experiences to the students' knowledge.	10.00%
Exams	Midterm and Final Exam (2 exams)	25.00%
Written assignments	Students submit written assignments and get individual feedback as well as sample solutions and general comments from the whole class.	25.00%

2. Organization of Content:
Content will be organized into topic modules. A new module will open weekly or, in the case of a late start or intersession class, semi-weekly.

3. Assessments:

% of grade	Activity	Assessment Method
25.00%	Chapter Quizzes	Formative quizzes to assess students understanding of the assigned reading.
25.00%	Exams	A comprehensive, evaluative midterm and a final exam will be administered.
25.00%	Discussion Participation	Written discussion assignments required around each topic.
25.00%	Presentations	Instructors may elect to assign individual or group presentations

4. Instructor's Technical Qualifications:
The instructor should be familiar with the state CVC OEI Rubric and have demonstrated proficiency in designing their canvas course shell to be *at least* "In Alignment" with all aspects of that rubric. It would be ideal for the course to be at an "Exemplary" rating with as many aspects of the rubric as possible.

5. Student Support Services:
All student support services that the college offers to students on the ground are applicable to our online students - with the possible exception of Bodega Bites!

6. Accessibility Requirements:
By aligning with all items in Section D of the OEI rubric, the course will be in compliance with all accessibility requirements.

7. Representative Online Lesson or Activity:
One objective is: Critically evaluate the historical contributions and experiences of underrepresented groups in computing, discerning the challenges and barriers these groups encountered.
For the Historical Perspectives Presentation sample assignment described previously in this application, students would have the opportunity to make use of all multimedia features of canvas, including flip grid, zoom recordings, canvas studio, etc. to create and submit multimedia presentations on the topic.

Santa Monica College
Program Of Study
Cloud Computing Bachelor of Science

Cloud computing is a major technology disrupter, changing countless industries. Cloud Computing delivers computing resources over the internet, replacing the reliance on local information technology infrastructure. Its impact has been profound, reshaping businesses' IT infrastructure due to its remarkable benefits in terms of flexibility, scalability, and cost-effectiveness. A degree in Cloud Computing offers an exceptional opportunity in response to the soaring demand in IT for cloud computing professionals. With organizations rapidly embracing cloud solutions, there is a significant need for skilled experts in cloud architecture, development, operations, security, and management. This is a four-year program with the lower division Cloud Computing Associates degree courses providing students with the skills necessary to enter the upper division courses in this exciting field.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to design, develop and operate scalable cloud solutions that meet business needs.
Upon successful completion of this program, students will be able to employ the current practices, methodologies, tools and processes currently utilized in the cloud computing industry today.
Upon successful completion of this program, students will be able to effectively communicate orally and in writing with business and technology professionals at various levels.
Upon successful completion of this program, students will be able to work successfully and collaborate effectively as an individual contributor or as a member of a multicultural team.

Lower Division Preparation For Admission Into The Program	**60.0-64.0**
ENGL 2[DE] Critical Analysis and Intermediate Composition	3.0
SMC GE Area I	3.0-5.0
SMC GE Area II-A	3.0
SMC GE Area II-B	3.0
SMC GE Area IV-B	3.0-5.0
Elective Courses	6.0
CS 3[DE] Introduction To Computer Systems	3.0
CS 70[DE] Network Fundamentals and Architecture	3.0
CS 43 Windows Network Administration	3.0

Choose 1 Track - 9 Units	**9.0**
Microsoft Azure Track	***9.0***
CS 33[DE] C # Programming	3.0
CS 79Y[DE] Microsoft Azure Database Essentials	3.0
CS 79Z[DE] Microsoft Azure Essentials	3.0

OR

Amazon Web Services Track	***9.0***
CS 79B[DE] Database Essentials in Amazon Web Services	3.0
CS 79C[DE] Compute Engines in Amazon Web Services	3.0
CS 79D[DE] Security in Amazon Web Services	3.0
CS 79A[DE] Introduction to Cloud Computing	3.0
CS 80[DE] Internet Programming	3.0
CS 81[DE] Javascript Programming	3.0
CS 87A[DE] Python Programming	3.0

Restricted Elective - 3 Units	**3.0**
CS 79E[DE] Best Practices in Amazon Web Services	3.0
CS 55[DE] Java Programming	3.0
CS 83R[DE] Server-Side Ruby Web Programming	3.0
CS 82 ASP.NET Programming in C#	3.0
ENGL 1[DE] Reading and Composition 1	3.0
COUNS 20[DE] Student Success Seminar	3.0

Lower Division Major Coursework	**15.0**
CS 9A[DE] Technology Project Management I *(same as: CIS 9A)*	3.0

CS 41[DE] Linux Workstation Administration	3.0
CS 60[DE] Database Concepts and Applications	3.0
CS 73A[DE] Fundamentals of Computer Security	3.0
CS 73B[DE] Computer Forensics Fundamentals	3.0

Elective Choice	**3.0**
BUS 63[DE] Principles of Entrepreneurship	3.0
CIS 30T[DE] Tableau Desktop Essentials	3.0
CS 79F[DE] Machine Learning on AWS	3.0
CS 79X[DE] Data Science on Azure	3.0
CS 82A[DE] Introduction to Data Science	3.0

Upper Division General Education Coursework (12 Units)	**9.0**
COM ST 310[DE] Organizational and Small Group Communication	3.0
ENGL 300[DE] Advanced Writing and Critical Thinking in the Disciplines	3.0
MEDIA 310 Race, Gender, and Computing	3.0

Upper Division Major Requirements	**30.0**
CS 310 Cloud Systems Programming	3.0
CS 320 Cloud Developer	3.0
CS 325 Ethics for IT Professionals	3.0
CS 330 Cloud Operations Technologies and Tools	3.0
CS 340 System Virtualization Fundamentals	3.0
CS 350 Collaboration Technologies and Tools	3.0
CS 405 Cloud Capstone I	3.0
CS 410 Cloud Capstone II	3.0
CS 440 Cloud Patterns	3.0
CS 450 Cloud Certification Bootcamp	3.0

Total: 117.0-121.0

Santa Monica College
Program Narrative
Cloud Computing Bachelor of Science

Program Goals and Objectives:

Cloud computing is a major technology disrupter, changing countless industries. Cloud Computing delivers computing resources over the internet, replacing the reliance on local information technology infrastructure. Its impact has been profound, reshaping businesses' IT infrastructure due to its remarkable benefits in terms of flexibility, scalability, and cost-effectiveness. A degree in Cloud Computing offers an exceptional opportunity in response to the soaring demand in IT for cloud computing professionals. With organizations rapidly embracing cloud solutions, there is a significant need for skilled experts in cloud architecture, development, operations, security, and management. This is a four-year program with the lower division Cloud Computing Associates degree courses providing students with the skills necessary to enter the upper division courses in this exciting field.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to design, develop and operate scalable cloud solutions that meet business needs.
Upon successful completion of this program, students will be able to employ the current practices, methodologies, tools and processes currently utilized in the cloud computing industry today.
Upon successful completion of this program, students will be able to effectively communicate orally and in writing with business and technology professionals at various levels.
Upon successful completion of this program, students will be able to work successfully and collaborate effectively as an individual contributor or as a member of a multicultural team.

Catalog Description:

Cloud computing is a major technology disrupter, changing countless industries. Cloud Computing delivers computing resources over the internet, replacing the reliance on local information technology infrastructure. Its impact has been profound, reshaping businesses' IT infrastructure due to its remarkable benefits in terms of flexibility, scalability, and cost-effectiveness. A degree in Cloud Computing offers an exceptional opportunity in response to the soaring demand in IT for cloud computing professionals. With organizations rapidly embracing cloud solutions, there is a significant need for skilled experts in cloud architecture, development, operations, security, and management. This is a four-year program with the lower division Cloud Computing Associates degree courses providing students with the skills necessary to enter the upper division courses in this exciting field.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to design, develop and operate scalable cloud solutions that meet business needs.
Upon successful completion of this program, students will be able to employ the current practices, methodologies, tools and processes currently utilized in the cloud computing industry today.
Upon successful completion of this program, students will be able to effectively communicate orally and in writing with business and technology professionals at various levels.
Upon successful completion of this program, students will be able to work successfully and collaborate effectively as an individual contributor or as a member of a multicultural team.

Master Planning:

The Cloud baccalaureate degree will be housed in Computer Science discipline in the Computer Science Information Systems department. Creation of the proposed Cloud Bachelor's degree is a natural progression for the Computer Science program at SMC, and one that leverages existing student populations, existing curriculum, and human and physical resources.

Our Associate's degree program in Cloud Computing was first launched at SMC in Fall 2017. In partnership with local high schools including LAUSD and Santa Monica-Malibu as well as industry partners like AWS Educate, we developed a core set of four classes to prepare graduates to earn well-recognized industry certifications in Cloud, specifically AWS Cloud Practitioner and AWS Solutions Architect Associate exams. Faculty at Santa Monica College created course materials for these classes and have updated them three different times in the many years since they were first created. Program completers were invited to participate in weekend bootcamps to prep for these certification exams. With recent Perkins rules changes, SMC is providing exam vouchers to all program completers interested in taking these certification exams at no cost to the student.

This Cloud program became a model for regional efforts statewide and for many years was the largest funded Strong Workforce project in the Los Angeles region. SMC Faculty served as the lead faculty on this regional project and help to

foster a rich community of practice focused on cooperation and coordination between the colleges. This regional project completed numerous professional development activities to build faculty skills in Cloud at nineteen local community colleges in the Los Angeles region. SMC's original four classes were adopted at a regional level speeding the development of programs across all these colleges. The regional project sponsored industry events called Cloud Days which were run twice a year at a regional level allowing employers to engage with students at scale in an efficient manner. Cloud Days typically attracted dozens of regional employers and 300-400 students from across the LA area. Our proposed baccalaureate degree in Cloud Computing is a natural progression and next step for the regional efforts described above. The Labor Market data in support of this program shows more than 108,000 job postings in the LA area for positions in Cloud between September 2021 and August 2022, more than 60% of which required a bachelor's degree. In order to be competitive job candidates in this industry, many of our students want to earn a four-year degree. However, nearly all of our four-year partners have impacted programs in tech fields and regularly deny admission to many more students than they accept. The biggest equity gap our students face is the limited bandwidth of our four-year partners to enroll them into their programs.

Enrollment and Completer Projections:

The program launch plan calls for a first cohort in Fall 2024 of 45 students followed by cohorts of 45 students in the following Spring, Fall and Spring for a total of 180 students enrolled in the program. We will be marketing this program to the 1000 students who have completed cloud classes at SMC, to the 1000 students who signed up for cloud classes at SMC but never completed them and to the 5000 students from other local colleges who have completed cloud classes elsewhere.

Place of Program in Curriculum/Similar Programs:

Our proposed baccalaureate degree in Cloud Computing is a natural progression and next step for the regional efforts in the LA region in cloud computing. The Labor Market data in support of this program shows more than 108,000 job postings in the LA area for positions in Cloud between September 2021 and August 2022, more than 60% of which required a bachelor's degree. In order to be competitive job candidates in this industry, many of our students want to earn a four-year degree. However, nearly all of our four-year partners have impacted programs in tech fields and regularly deny admission to many more students than they accept. The biggest equity gap our students face is the limited bandwidth of our four-year partners to enroll them into their programs.

Similar Programs at Other Colleges in Service Area:

No other two-year or four-year institutions have a dedicated and focused Cloud Computing program. We are the lead college in a regional consortium teaching cloud computing skills in computer science programs at the community college level.

Unmet Workforce Demand for Cloud Computing Occupations in LA County:

Labor Market Supply and Demand for Cloud Computing Baccalaureate of Applied Science (B.A.S.) degree at Santa Monica College

Prepared by: Los Angeles Center of Excellence for Labor Market Research
September 2022

Table of Contents

Key Findings

Demand:

- Employment in cloud computing occupations has grown at a much faster rate over the last 20 years (41.3%) than employment across all occupations (6.9%).
- Employment in cloud computing occupations declined at a much slower rate during the COVID-19 pandemic (-4.5%) than the average across all occupations (-8.3%), demonstrating a higher degree of resilience for cloud computing roles during this time.
- Over the next five years, more than 11,000 cloud computing jobs are projected to be available in Los Angeles County.
    - 87% of these projected job openings (9,561 openings) are for computer occupations that typically require a bachelor's degree for entry.
- Average hourly wages for cloud computing occupations are $6.50 higher than the average across all occupations at the 10th percentile, $10.50 higher at the 25th percentile, $14.00 higher at the median, $19.00 higher at the 75th percentile, and nearly $21.00 more per hour at the 90th percentile.

Supply:

- Between 2018 and 2021, Los Angeles community colleges issued an average of 1,129 awards annually in programs related to cloud computing.
- Between 2017 and 2020, non-community college institutions in the region conferred an average of 292 sub-baccalaureate awards from related programs.
    - An average of 1,421 sub-baccalaureate awards (associate degrees and certificates) related to cloud computing are issued annually in Los Angeles County.
- Between 2017 and 2020, educational providers in the region conferred an average of 2,183 bachelor's degrees from programs related to cloud computing.

Gap Analysis:

- With 1,421 average annual sub-baccalaureate awards issued in the county and 1,440 projected annual job openings related to cloud computing roles that require less than a bachelor's degree, the potential supply gap at this level of education is only 19 unfilled jobs.
- With 2,183 average annual bachelor's degrees issued in the county and 9,561 projected annual job openings related to cloud computing that typically require a bachelor's degree for entry, the potential supply gap at this level of education is 7,378 unfilled jobs.

Introduction

Cloud computing

The introduction of cloud computing to the ever-growing world of information technology is introducing significant changes not only to technology processes but to the workforce. Cloud computing allows for the storage, management, and processing of data using internet technologies ("the cloud"). Some of the leading cloud computing providers include Amazon Web Services (AWS), Google Cloud Platform, Microsoft Azure, and IBM. Advantages of this evolving technology include:[1]

- Payment for data center and server-type resources on an as needed basis or pay-as-you-go
- Cost savings due to economies of scale
- No more physical infrastructure and associated costs
- Global reach and access
- Deployment of technology services quickly

Uses of cloud computing

Cloud computing is utilized by a wide variety of organizations including small businesses, large global corporations, government agencies, and not-for-profits. Services available through cloud computing include:[2]

- Creation of new apps and services
- Storage, back up, and recovery of data
- Website and blog hosting
- Audio and video streaming
- Delivery of software on demand
- Analyzation of data for patterns and predictions

Impact on workforce and training

With the introduction and implementation of cloud computing into the information technology workforce, community colleges and other training providers will need to integrate related skills and technologies into the current curricula and training. Local community colleges currently offer several programs that train students in relational databases, programming, Linux, DevOps, quality assurance, and information security. Individual colleges are attempting to stack or

[1] Amazon Web Services - What is cloud computing?
[2] Microsoft Azure – A beginner's guide to cloud computing

leverage certificates for cloud computing career paths with related disciplines including small business, computer science, web development, business analytics, IT, and mobile developers.

The emergence of cloud computing has preempted incumbent IT workers to upskill based on workforce and employer needs. With the right training, workers with traditional IT skills—such as data engineers, enterprise architects, web developers, and networking engineers—can expand their knowledge, skills, and abilities within the ever-changing field of information technology.

Occupational outlook for cloud computing

Businesses that employ cloud computing workers use various job titles, which are explored in the job posting section beginning on page 12. In the region, major cloud computing employers include Boeing, Northrup Grumman, Robert Half, Anthem Blue Cross, Amazon, Deloitte, Raytheon, and Disney.

The purpose of this study is to determine whether there is demand in the local labor market for cloud computing jobs that is not being met by the supply from relevant training programs. More specifically, this report addresses the labor market component of Assembly Bill 927, which requires evidence of unmet workforce needs related to Santa Monica College's proposed cloud computing baccalaureate program.[3]

[3] AB-927 Public postsecondary education: community colleges: statewide baccalaureate degree program

Key Cloud Computing Occupations

The cloud computing occupations analyzed in this report were selected from the 2018 Standard Occupational Classification (SOC) system, and all but one of these occupations belong to the computer and mathematical major occupational group (SOC 15-000). The occupations listed in Exhibit 1 comprise the cloud computing occupations used throughout this report.

Exhibit 1: Could computing occupations

SOC Code	Description
11-3021	Computer and Information Systems Managers
15-1211	Computer Systems Analysts
15-1212	Information Security Analysts
15-1231	Computer Network Support Specialists
15-1232	Computer User Support Specialists
15-1241	Computer Network Architects
15-1242	Database Administrators
15-1243	Database Architects
15-1244	Network and Computer Systems Administrators
15-1251	Computer Programmers
15-1252	Software Developers
15-1253	Software Quality Assurance Analysts and Testers
15-1254	Web Developers
15-1255	Web and Digital Interface Designers
15-1299	Computer Occupations, All Other

Source: 2018 Standard Occupational Classification (SOC) system

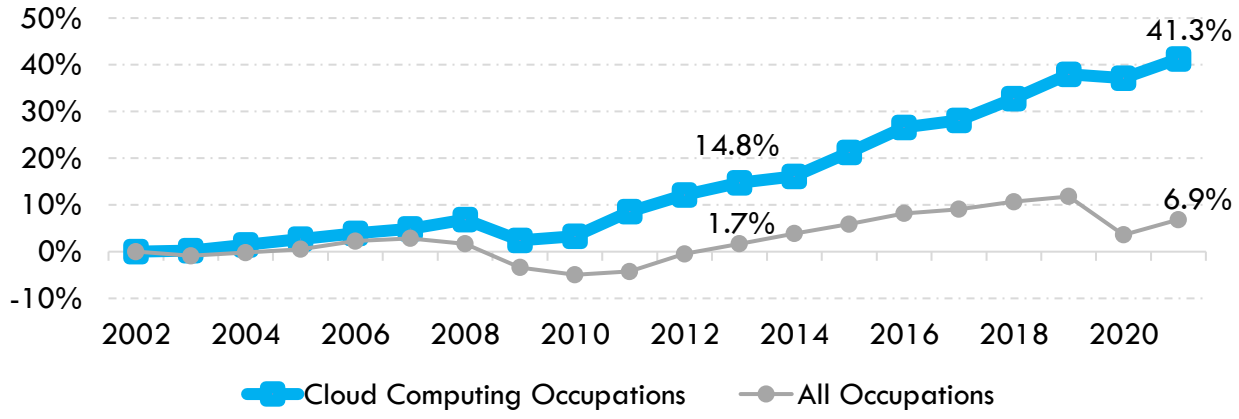
Labor Market Demand for Cloud Computing Occupations

Historical employment in LA County

Look back over the past 20 years and setting 2002 as the base year yields a clear picture regarding employment in cloud computing occupations. Exhibit 2 demonstrates that since 2002, employment in cloud computing occupations has grown by 41.3% while employment across all occupations has only grown by 6.9%. Furthermore, the Great Recession (2007-2009) brought employment across all occupations below the 2002 baseline from 2009 to 2012, and recovered to 1.7% above the baseline level in 2013. Conversely, employment in cloud computing

occupations never dropped below the 2002 baseline level and by 2013 had increased by nearly 15%.

Exhibit 2: Percent change in employment since 2002

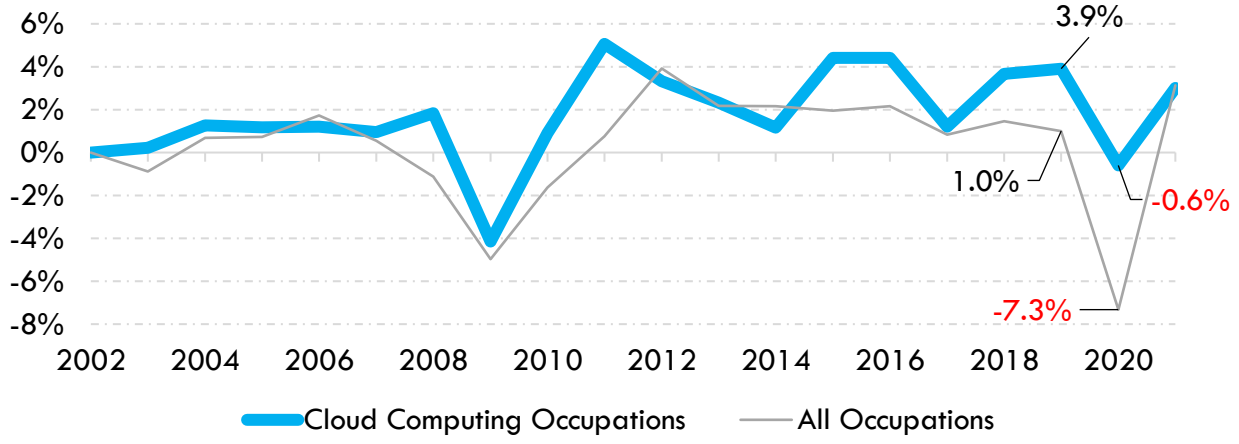


Source: Lightcast, Datarun 2022.3

Using the same data, Exhibit 3 displays the year-over-year change in employment from 2002 to 2021 for cloud computing occupations (thick blue line) and all occupations (thin grey line) in LA County. The location of the line in any given year indicates the percentage by which employment changed from the previous year. For instance, from 2019 to 2020, employment for all occupations plummeted at nearly twice the rate (-8.3%) as employment for cloud computing occupations (-4.5%).

During this 20-year timeframe, the year-over-year percent change in employment for cloud computing occupations peaks higher than for all occupations (see years 2011, 2015-2016, and 2018-2019), and also demonstrates that employment in cloud computing occupations was less adversely impacted by the COVID-19 pandemic than it was across all occupations.

Exhibit 3: Year-over-year employment percent change in LA County from 2002 to 2021



Source: Lightcast, Datarun 2022.3

Exhibits 2 and 3 demonstrate two major points. The first is that employment in cloud computing occupations has grown at a much faster rate over the last 20 years than employment across all occupations. Secondly, while employment in cloud computing occupations is not immune to large scale economic shocks such as the Great Recession and the COVID-19 pandemic, it is more insulated and less prone to job loss at the scale felt across all occupations.

Projected Annual Job Openings, 2021-2026

Exhibit 4 displays detailed 2021 job counts, projected employment figures through 2026, annual job openings, and typical entry-level education requirements for each occupation studied in this report. In Los Angeles County, there will be over 11,000 job openings, with *software developers* projected to have the largest share of those openings, followed by *computer occupations, all other*, and *computer and information systems managers*. Cloud computing occupations that typically require a bachelor's degree account for 87% of the 11,001 projected annual job openings.

Exhibit 4: Cloud computing occupational demand in Los Angeles County

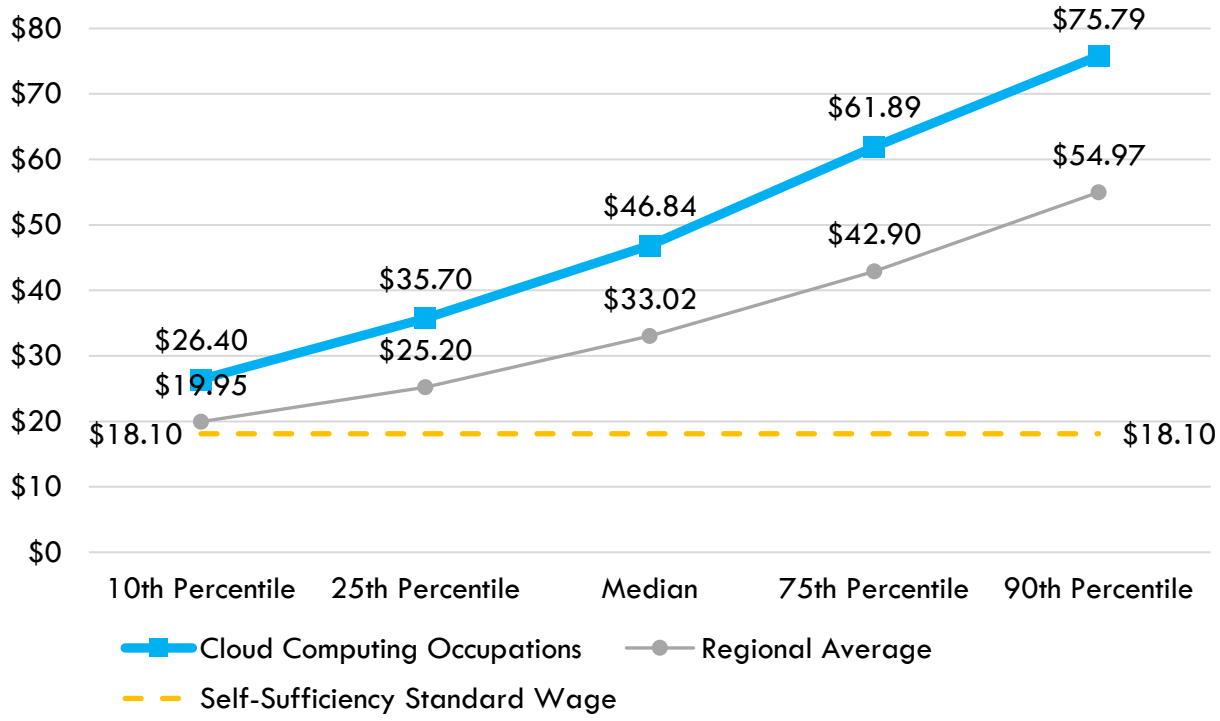
SOC	Occupation	2021 Jobs	2026 Jobs	5-Year % Change	Annual Openings	Typical Entry Level Education
15-1252	Software Developers	35,221	38,662	10%	3,336	Bachelor's degree
15-1299	Computer Occupations, All Other	18,452	18,400	(0%)	1,343	Bachelor's degree
11-3021	Computer and Information Systems Managers	17,744	17,840	1%	1,318	Bachelor's degree
15-1232	Computer User Support Specialists	15,375	15,622	2%	1,165	Some college, no degree
15-1211	Computer Systems Analysts	12,680	12,623	(0%)	888	Bachelor's degree
15-1253	Software Quality Assurance Analysts and Testers	4,977	5,401	9%	457	Bachelor's degree
15-1244	Network and Computer Systems Administrators	6,573	6,562	(0%)	424	Bachelor's degree
15-1254	Web Developers	4,317	4,527	5%	360	Bachelor's degree
15-1255	Web and Digital Interface Designers	3,620	3,876	7%	320	Bachelor's degree
15-1231	Computer Network Support Specialists	3,572	3,650	2%	275	Associate's degree
15-1251	Computer Programmers	4,242	3,949	(7%)	272	Bachelor's degree
15-1212	Information Security Analysts	2,601	2,942	13%	264	Bachelor's degree
15-1241	Computer Network Architects	4,125	4,088	(1%)	242	Bachelor's degree
15-1243	Database Architects	2,402	2,414	0%	176	Bachelor's degree
15-1242	Database Administrators	2,094	2,140	2%	161	Bachelor's degree
	Total	**137,994**	**142,696**	**3%**	**11,001**	

Source: Lightcast, Datarun 2022.3

Average hourly wages for cloud computing occupations

The average hourly wage for cloud computing occupations in Los Angeles County at the 10th, 25th, median, 75th, and 90th percentile is displayed in Exhibit 5. At the lowest percentile available (i. e., the 10th), workers employed in cloud computing occupations earn approximately $6.50 per hour more than the regional average across all occupations. This is welcome news by itself, however, the lifelong benefit of being employed in a cloud computing occupation in Los Angeles County is that this gap widens among higher earners in a linear fashion. Progressing to the 25th percentile, workers in cloud computing occupations earn $10.50 per hour more than the average worker in the region, nearly $14 more at the median level, nearly $19 more at the 75th percentile, and nearly $21.00 more per hour at the 90th percentile, on average.

Exhibit 5: Hourly wage range for could computing occupations



Source: Lightcast, Datarun 2022.3 and the Self-Sufficiency Standard for California

Detailed median hourly and annual wages by occupation are displayed in descending order in Exhibit 6 for cloud computing occupations, from highest to lowest.

Exhibit 6: Median hourly and annual wages by detailed cloud computing occupations

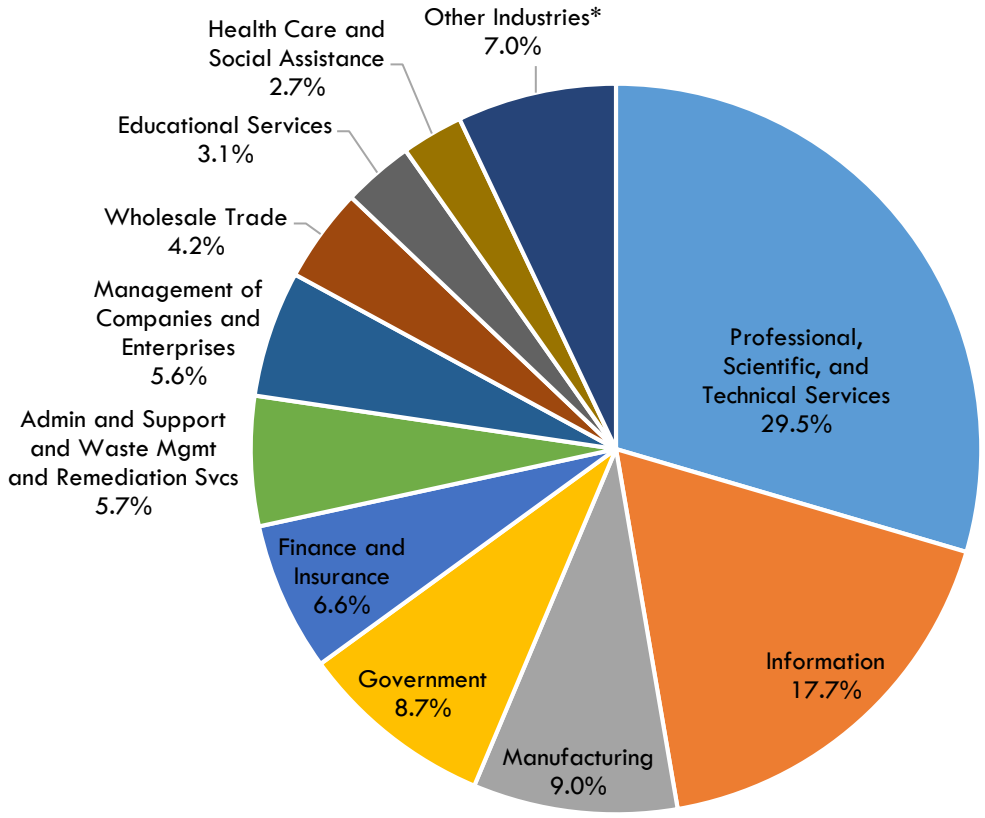
SOC Code	Description	Median Hourly Earnings	Median Annual Earnings
11-3021	Computer and Information Systems Managers	$78.97	$164,259
15-1252	Software Developers	$61.53	$127,973
15-1212	Information Security Analysts	$57.85	$120,337
15-1241	Computer Network Architects	$54.69	$113,760
15-1211	Computer Systems Analysts	$50.12	$104,255
15-1253	Software Quality Assurance Analysts and Testers	$48.31	$100,477
15-1251	Computer Programmers	$47.97	$99,774
15-1242	Database Administrators	$47.72	$99,249
15-1244	Network and Computer Systems Administrators	$45.90	$95,474
15-1299	Computer Occupations, All Other	$38.49	$80,066
15-1255	Web and Digital Interface Designers	$37.43	$77,859
15-1243	Database Architects	$36.87	$76,694
15-1254	Web Developers	$36.25	$75,392
15-1231	Computer Network Support Specialists	$31.14	$64,779
15-1232	Computer User Support Specialists	$29.30	$60,941

Source: Lightcast, Datarun 2022.3

Industry employment of cloud computing occupations

Unlike occupations that are largely concentrated within a single industry (e. g., surgeons in healthcare or police officers working in various levels of government), cloud computing occupations are employed across a wide spectrum of industries. Exhibit 7 displays the portion of cloud computing occupational employment within each industry sector. The two industry sectors with the largest share of cloud computing occupational employment are *professional, scientific, and technical services* (business that primarily provide consulting, legal, accounting, design, computer, and other services) at 29.5%, and *information* (comprised mostly of motion picture and sound recording businesses) at 17.7%. Combined, these two industry sectors account for nearly half of the employment in cloud computing occupations in Los Angeles County.

Exhibit 7: Industry concentration of cloud computing jobs in 2021

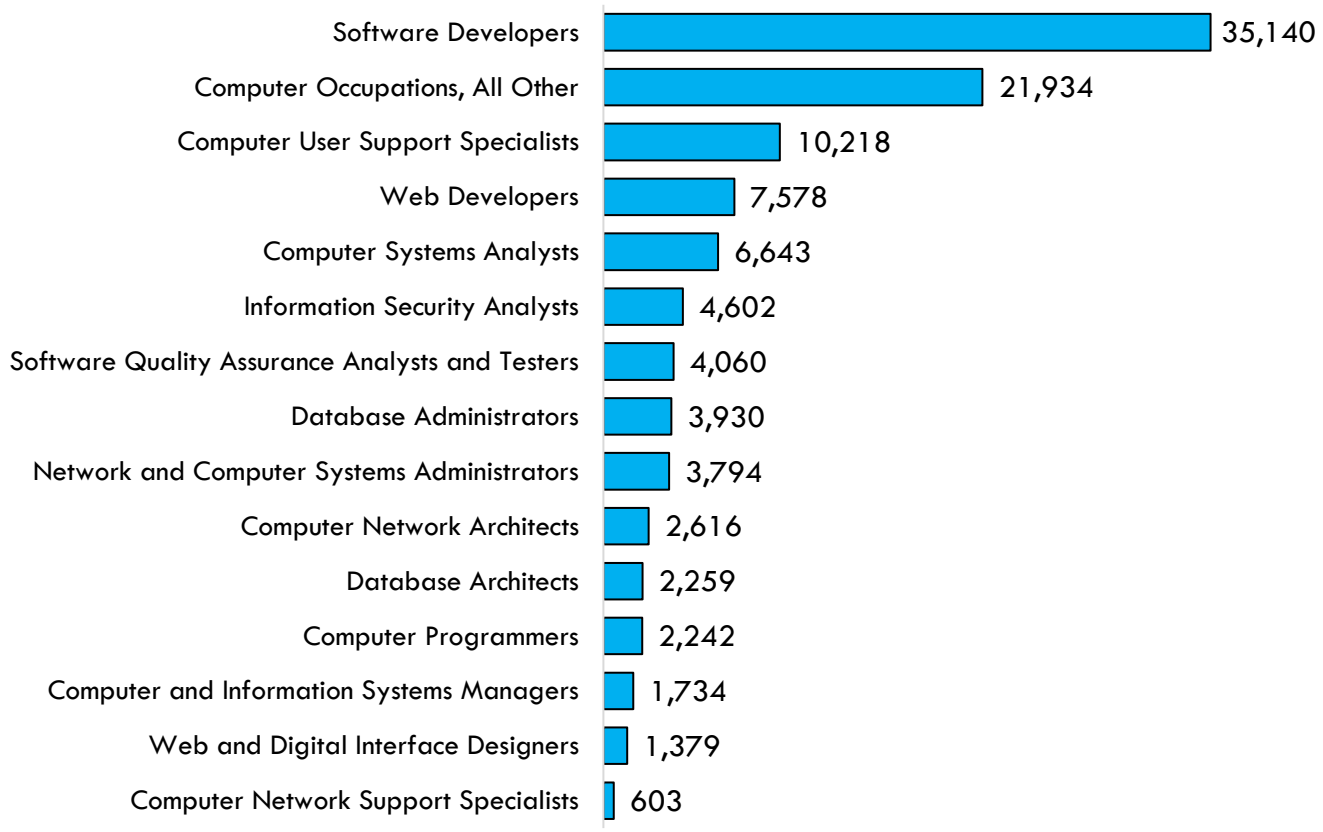


**Other Industries include: Retail Trade (1.9%); Other Services, except Public Administration (1.4%); Transportation and Warehousing (1.3%); Arts, Entertainment, and Recreation (0.7%); Real Estate and Rental and Leasing (0.6%); Construction (0.5%); Utilities (0.4%); Accommodation and Food Services (0.1%); and Mining, Quarrying, and Oil and Gas Extraction & Agriculture, Forestry, Fishing and Hunting (both <0.1%).*
Source: Lightcast, Datarun 2022.3

Job Postings for cloud computing

Over the last 12 months (September 2021 through August 2022), there were 108,732 unique online job postings related to cloud computing occupations in Los Angeles County. The occupation with the highest number of online job postings, 35,140, was *software developers* (32% of total), followed by 21,934 job ads for *computer occupations, all other* (20% of total), and 10,218 job ads for *computer user support specialists* (9% of total). The number of job postings by occupation appear in Exhibit 8.

Exhibit 8: Job postings by occupation (Sep 2021 – Aug 2022)



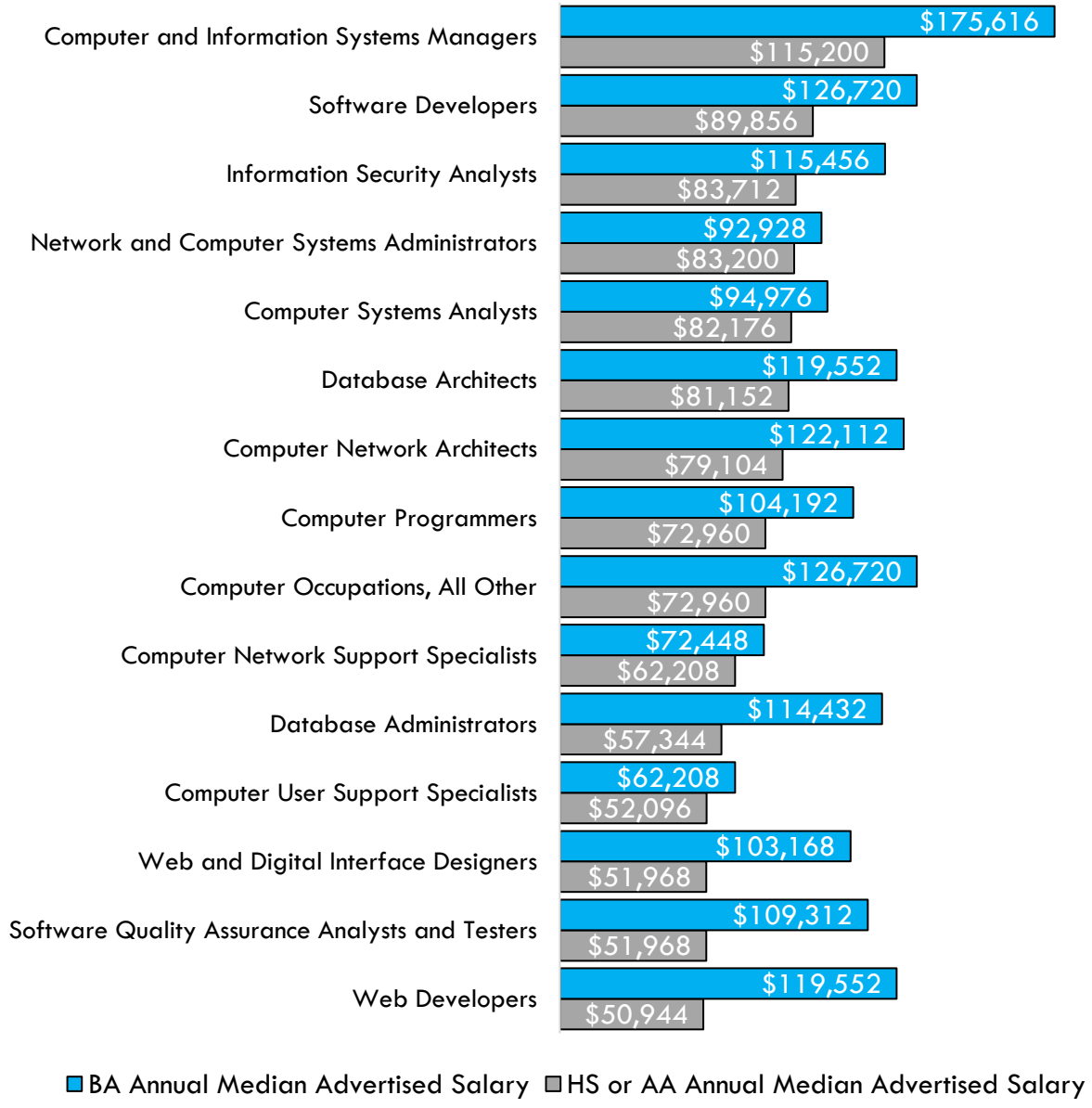
Source: Lightcast, Datarun 2022.3

The most common job titles from job postings were software engineers, systems engineers, data engineers, and DevOps engineers. The employers posting the most job ads during this timeframe were Boeing, Northrup Grumman, Robert Half, Anthem Blue Cross, Amazon, Deloitte, Raytheon, and Disney. The skills sought most frequently in these job ads were related to computer science, agile methodology, SQL, Python, Amazon Web Services, Java, JavaScript, automation, application programming interface, and Microsoft Azure. Beyond security clearances and certifications related to dealing with sensitive information, certifications most frequently sought by employers were project management certifications, Cisco Certified Network Associate, CompTIA Security+, and CompTIA Network+.

Of all the job postings that listed a minimum educational requirement, nearly two-thirds of employers were seeking candidates with a bachelor's degree (63% of total), demonstrating that

employers postings job ads prefer candidates with a bachelor's degree for these jobs. Taking a closer look at job postings that listed a high school diploma or associate degree as the required level of education versus those postings that listed a bachelor's degree, employers seeking candidates with a bachelor's degree for cloud computing jobs are advertising annual salaries that are over $38,000 higher per year than those seeking candidates with a high school diploma or associate degree. The largest difference was for *web developers,* where employers were advertising salaries over $68,600 higher for candidates with a bachelor's degree. Exhibit 9 demonstrates that regional employers posting job ads for these cloud computing occupations are willing to pay significantly more for candidates with a bachelor's degree than for candidates with a high school diploma or associate degree.

Exhibit 9: Annual median advertised salary by education level



Source: Lightcast, Datarun 2022.3

Educational Supply: Key Training Programs for Cloud Computing

Community College Enrollment and Awards related to Cloud Computing

There are 17 TOP codes in the California Community College system designed to train students for occupations related to cloud computing. The top programs in Los Angeles County in terms of enrollment are Information Technology, General (0701.00), Computer Programming (0707.10) and Computer Information Systems (0702.00). The average enrollment between 2017 and 2020 in these cloud computing-related programs was 36,415 students in Los Angeles County. Exhibit 10 displays the number of students enrolled in these programs over the last three academic years.

Exhibit 10: Community college students enrolled in programs related to cloud computing

Program (TOP)	2017-18	2018-19	2019-20	3-Year Average
Information Technology, General (0701.00)	15,745	14,317	12,183	**14,082**
Computer Programming (0707.10)	6,584	6,974	8,274	**7,277**
Computer Information Systems (0702.00)	5,439	5,732	6,163	**5,778**
Software Applications (0702.10)	2,907	2,581	2,313	**2,600**
Computer Science (0706.00)	2,000	2,388	3,001	**2,463**
Computer Infrastructure and Support (0708.00)	903	1,065	1,331	**1,100**
Computer Networking (0708.10)	939	975	997	**970**
Computer Support (0708.20)	421	414	437	**424**
Database Design and Administration (0707.20)	299	348	485	**377**
Website Design and Development (0614.30)	291	324	320	**312**
Computer Systems Analysis (0707.30)	237	201	485	**308**
World Wide Web Administration (0709.00)	190	182	317	**230**
Computer Software Development (0707.00)	136	252	179	**189**
E-Commerce (technology emphasis) (0709.10)	95	142	173	**137**
Other Information Technology (0799.00)	35	35	290	**120**
Telecommunications Technology (0934.30)	31	64	35	**43**
E-Commerce (Business emphasis) (0509.70)	-	17	-	**6**
Total	**36,252**	**36,011**	**36,983**	**36,415**

Source: Cal-PASS Plus LaunchBoard

On average, 1,129 awards were conferred annually to community college students in these 17 programs related to cloud computing (see Exhibit 11). Awards from these programs have increased 19% during this three-year period from 1,028 in the 2018-19 academic year to 1,223 in 2020-21. The program that conferred the largest number of awards was Computer Programming (0707.10), followed by Information Technology (0701.00) and Computer Networking (0708.10). Of these 1,129 awards, 436 were associate degrees and 667 were certificates.

Exhibit 11: Regional community college awards (certificates and degrees), 2018-2021

Program (TOP)	2018-19	2019-20	2020-21	3-Year Average
Computer Programming (0707.10)	220	217	218	**218**
Information Technology, General (0701.00)	175	172	167	**171**
Computer Networking (0708.10)	221	145	136	**167**
Computer Science (0706.00)	112	147	222	**160**
Computer Information Systems (0702.00)	82	170	88	**113**
Computer Infrastructure and Support (0708.00)	40	83	118	**80**
Computer Support (0708.20)	34	60	84	**59**
World Wide Web Administration (0709.00)	50	40	68	**53**
Database Design and Administration (0707.20)	16	23	47	**29**
Software Applications (0702.10)	31	29	12	**24**
Telecommunications Technology (0934.30)	18	13	23	**18**
Website Design and Development (0614.30)	12	12	14	**13**
Other Information Technology (0799.00)	13	15	4	**11**
Computer Systems Analysis (0707.30)	2	5	9	**5**
E-Commerce (Business emphasis) (0509.70)	-	4	7	**4**
Computer Software Development (0707.00)	1	-	5	**2**
E-Commerce (technology emphasis) (0709.10)	1	1	1	**1**
Total	**1,028**	**1,136**	**1,223**	**1,129**

Source: California Community Colleges Chancellor's Office Management Information Systems Data Mart

In addition to the cloud computing awards issued by the nineteen community colleges in Los Angeles County, there are other educational institutions that issue sub-baccalaureate awards related to cloud computing. Between 2017 and 2020, an average of 292 sub-baccalaureate awards were issued across the 18 program areas listed in Exhibit 12. Awards from these programs have also increased during this three-year period from 295 in the 2017-18 academic

year to 357 in 2029-20, a 21% increase. The program with the most awards was Computer and Information Sciences, General (CIP 11.0101), conferring 145 such awards during the 2019-20 academic year.

Exhibit 12: Regional non-community college awards, 2017-2020

Program (CIP)	2017-18	2018-19	2019-20	3-Year Average
Computer and Information Sciences, General (11.0101)	71	31	145	**82**
Information Technology (11.0103)	38	57	25	**40**
Computer Programming/Programmer, General (11.0201)	23	29	46	**33**
Network and System Administration/Administrator (11.1001)	19	28	34	**27**
Web/Multimedia Management and Webmaster (11.1004)	17	24	37	**26**
Computer and Information Sciences, Other (11.0199)	47	6	-	**18**
System, Networking, and LAN/WAN Management/Manager (11.1002)	7	9	19	**12**
Computer/Information Technology Services Administration and Management, Other (11.1099)	9	5	15	**10**
Computer Science (11.0701)	16	12	-	**9**
Data Modeling/Warehousing and Database Administration (11.0802)	6	7	15	**9**
Computer Software and Media Applications, Other (11.0899)	14	-	10	**8**
Computer and Information Systems Security/Auditing/Information Assurance (11.1003)	17	-	5	**7**
Computer and Information Sciences and Support Services, Other (11.9999)	-	12	-	**4**
Data Processing and Data Processing Technology/Technician (11.0301)	6	1	-	**2**
Computer/Computer Systems Technology/Technician (15.1202)	1	-	4	**2**
Computer Systems Networking and Telecommunications (11.0901)	-	2	2	**1**
Computer Systems Analysis/Analyst (11.0501)	2	-	-	**1**
Computer Engineering, General (14.0901)	2	-	-	**1**
Total	**295**	**223**	**357**	**292**

Source: National Center for Education Statistics' Integrated Postsecondary Education Data System

Baccalaureate degrees related to Cloud Computing

In Los Angeles County, awards have been issued in nine programs related to cloud computing at 4-year colleges that award bachelor's degrees (see Exhibit 13). Between 2017 and 2020, there was an average of 2,183 bachelor's degrees awarded. Similar to community college awards related to cloud computing, bachelor's awards from these programs have also increased during this three-year period, from 2,004 in the 2017-18 academic year to 2,414 in 2019-20, a 20.5% increase. The program with the most awards was Computer Science, conferring more than half of the cloud computing-related bachelor's degrees in the county (1,396 awards).

Exhibit 13: Regional non-community college awards, 2017-2020

Program (CIP)	2017-18	2018-19	2019-20	3-Year Average
Computer Science (11.0701)	1,269	1,351	1,569	**1,396**
Computer Engineering, General (14.0901)	271	259	324	**285**
Information Technology (11.0103)	182	184	201	**189**
Computer and Information Sciences, General (11.0101)	123	159	146	**143**
Computer and Information Sciences, Other (11.0199)	136	142	138	**139**
Computer Software and Media Applications, Other (11.0899)	8	19	28	**18**
Computer Engineering Technology/Technician (15.1201	11	11	4	**9**
E-Commerce/Electronic Commerce (52.0208)	2	3	4	**3**
Web/Multimedia Management and Webmaster (11.1004)	2	-	-	**1**
Total	**2,004**	**2,128**	**2,414**	**2,183**

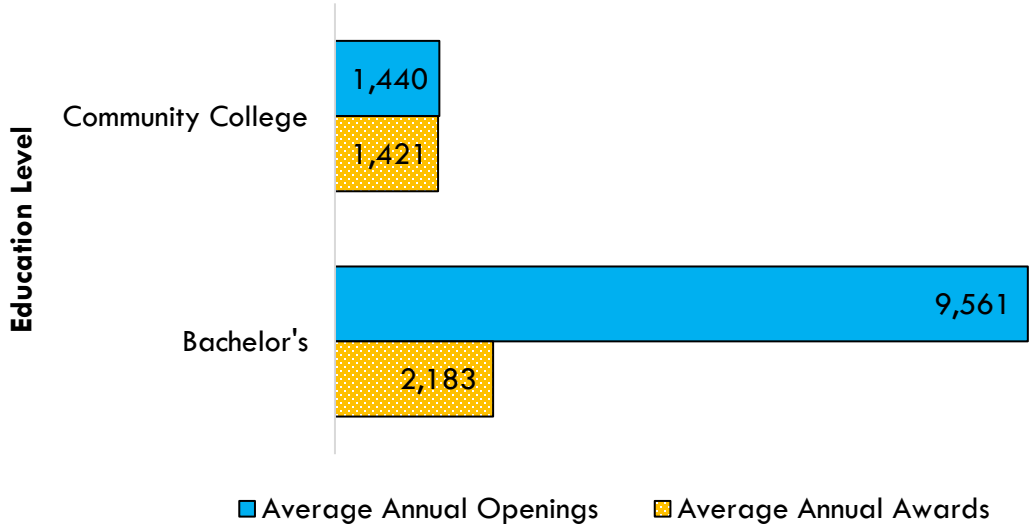
Source: National Center for Education Statistics' Integrated Postsecondary Education Data System

Gap Analysis

Breaking down the educational supply and occupational demand for cloud computing in Los Angeles County yields a clear pattern (see Exhibit 14). With 1,421 average annual sub-baccalaureate awards issued in the county and 1,440 projected annual job openings related to cloud computing, the potential supply gap at this level of education is only 19 unfilled jobs. For all practical intents and purposes, the supply and demand at this level of education is largely in equilibrium.

With 2,183 average annual bachelor's degrees issued in the county and 9,561 projected annual job openings related to cloud computing that typically require a bachelor's degree for entry, the potential supply gap at this level of education is 7,378 unfilled jobs. This significant projected workforce shortage facing Los Angeles County requires the attention of all regional education and training providers.

Exhibit 14: Supply and demand gap analysis for cloud computing by education level



Source: Lightcast, Datarun 2022.3; California Community Colleges Chancellor's Office Management Information Systems Data Mart; National Center for Education Statistics' Integrated Postsecondary Education Data System

Recommendations & Discussion

This report demonstrates that while the demand for sub-baccalaureate jobs related to cloud computing is largely being met by related training programs in the region, the supply for baccalaureate jobs related to cloud computing pales in comparison to the number of projected job openings over the next five years. While this is a great starting point to engage in meaningful discussion about the prospects of a community college baccalaureate program helping to bridge the gap between supply and demand in the labor market, it is not sufficient based on legislation.

Therefore, this report can be used as a launch board to validate these findings with regional employers and training providers in an effort to assess that the following are true:

- Evidence that employers are having difficulty filling positions that require a baccalaureate degree.
- Evidence that employers are willing to pay baccalaureate degree holders more than those with a related associate degree or no postsecondary degree.
- Evidence that employers prefer candidates with the proposed baccalaureate degree.
- Evidence of job placement and/or promotion opportunities for candidates with a baccalaureate degree.
- Evidence that the occupation/field the proposed baccalaureate degree is in will provide for higher-wage job opportunities.

Methodology

This report has three primary objectives:

1. Assess and quantify the labor market demand for jobs related to cloud computing in Los Angeles County that typically require a bachelor's degree for entry.
2. Assess and quantify the educational supply for such jobs.
3. Calculate the potential unmet workforce demand for these jobs.

For the first objective, the most recent datarun (2022.3) from Lightcast was analyzed using 2021 as a base year and a five-year projection period through 2026. This five-year period approximates the time it takes for a typical community college training program to be developed, approved, and for the first cohort of students to enroll, complete the program, and enter the workforce. The average annual job openings for each computer occupation involved in cloud computing that typically requires a bachelor's degree for entry was the primary metric analyzed for this objective.

The second objective was calculated using two data sources. The California Community Colleges Chancellor's Office Management Information Systems Data Mart was queried for the number of certificates and associate degrees issued from programs related to cloud computing by the 19 community colleges in Los Angeles County during the most recent three academic years (2018-19, 2019-20 and 2020-21). The California Community Colleges use the Taxonomy of Programs (TOP) to organize and categorize programs. A full list of TOP codes used for this analysis appear in the appendix. Next, the National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS) was queried for the number of bachelor's degrees issued from other educational institutions in Los Angeles County during the most recent three academic years available (2017-18, 2018-19, and 2019-20). Reporting in IPEDS is organized by Classification of Instructional Programs (CIP). Community college programs by TOP code were crosswalked to non-community college programs by CIP code utilizing the TOP-CIP-SOC crosswalk maintained by the Centers of Excellence for Labor Market Research.

The third objective was achieved by calculating the difference between the sum of annual job openings related to cloud computing and the number of awards issued from related programs. This calculation determines whether there is demand in the labor market is not being met by the supply from educational programs that align with the relevant occupations.

Cloud computing at SMC and Beyond – Innovation and Industry

The cloud baccalaureate degree will be housed in the Computer Science discipline in the Computer Science Information System department. Creation of the proposed cloud Bachelor's degree is a natural progression for the Computer Science program at SMC, and one that leverages existing student populations, existing curriculum, and human and physical resources.

The College's Associate's degree program in cloud computing was first launched at SMC in Fall 2017. In partnership with local high schools including LAUSD and Santa Monica-Malibu as well as industry partners like AWS Educate, we developed a core set of four classes to prepare graduates to earn well-recognized industry certifications in cloud, specifically AWS Cloud Practitioner and AWS Solutions Architect Associate exams. Faculty at Santa Monica College created course materials for these classes and have updated them three different times in the many years since they were first created. Program completers were invited to participate in weekend boot camps to prep for these certification exams. With recent Perkins rules changes, SMC is providing exam vouchers to all program completers interested in taking these certification exams at no cost to the student.

This cloud program became a model for regional efforts statewide and for many years was the largest funded Strong Workforce project in the Los Angeles region. SMC instructors served as the lead faculty on this regional project and helped to foster a rich community of practice focused on cooperation and coordination between the colleges. This regional project completed numerous professional development activities to build faculty skills in cloud at nineteen local community colleges in the Los Angeles region. More than 50 faculty across the region were involved. SMC's original four classes were adopted at a regional level, speeding the development of programs across all these colleges. The regional project sponsored industry events called "Cloud Days" which were run twice a year at a regional level allowing employers to engage with students at scale in an efficient manner. Cloud Days typically attracted dozens of regional employers and 300-400 students from across the LA area. From fall 2017 to fall 2019, more than 2,100 students enrolled in cloud computing program courses, and the annual number has increased since. Moreover, a large consortium of community colleges in Northern California are working to emulate the program developed in Los Angeles and Orange County.

Our proposed baccalaureate degree in cloud computing is a natural progression and next step for the regional efforts described above. The Labor Market data in support of this program shows more than 108,000 job postings in the LA area for positions in cloud between September 2021 and August 2022, more than 60% of which required a bachelor's degree. In order to be competitive job candidates in this industry, many of our students want to earn a four-year degree. However, nearly all of our four-year partners have impacted programs in tech fields and regularly deny admission to many more students than they accept. The biggest equity gap our students face is the limited bandwidth of our four-year partners to enroll them into their programs.

The College currently offers 65 sections of computer science courses per semester with robust enrollment. Since Fall 2020, over 865 students successfully completed two or more core courses of the cloud Associate's Degree curriculum, 151 successfully completed four or more, and 102

were awarded degrees or certificates in cloud computing. Additional regional colleges teaching cloud programs include El Camino College, East LA College, Pasadena College, LA City College, Long Beach, West Los Angeles College and others. The existing cloud programs at the aforementioned local community colleges will provide a pool of candidates for SMC's cloud computing bachelor's degree program. We envision this four-year degree as continuing to serve the needs of the region and will work with our local community college partners to ensure a smooth pathway into our program regardless of where students have completed their prerequisite coursework.

The Computer Science Program provides access to a broad spectrum of students by offering classes in traditional timeslots and formats, as well as online and in the evening. Prior to the COVID-19 pandemic, about 30% of classes were held at night and about 45% were fully online. These flexible scheduling options will remain to meet student demand. During the pandemic, the Computer Science program has moved completely online and has seen an uptick in enrollment.

Labor Market Need – A Growing and Diverse Workforce

Santa Monica College provides access to and strives to close the achievement gap for traditionally underrepresented minoritized student populations within the community. Research commissioned by SMC's Workforce and Economic Development Office identifies cloud computing as an industry area that clearly matches the high-demand, high-growth, and high-wage requirements specified by AB 927. Students in the cloud computing program will help to increase diversity and equity in this industry sector, an acknowledged deficiency that both SMC and many tech companies strive to address. As recently noted in Bizjournal, "In Los Angeles, 24% of tech workers are female, 17% are Latinx, and 4% are Black. Those groups respectively account for 49%, 38% and 7% of all jobs there." While Los Angeles shows *better* technology workforce participation by under-represented groups as compared to other metropolitan areas, the gaps are still jarring. Crucially, Santa Monica College's cloud computing baccalaureate program will close those workforce participation gaps insofar as the student population in Computer Science at SMC is far more representative of regional demographics than is currently the case in the tech sector overall. The six-year average share of Computer Science enrollments is 32% for Latinx and 7% for Black students at Santa Monica College; those rates are significantly higher than those reported in the regional technology workforce. Accordingly, as industry strives to close racially inequitable gaps in their hiring outcomes, a diverse student body of cloud computing baccalaureate-holders would meet a crucial workforce hiring need.

By the Numbers – A Clear Case

The Centers of Excellence (COE) analysis of available labor market information boldly favors the case for a first-ever cloud computing bachelor's degree. While the full COE text is available in the appendix to this application (section H), a significant portion of that lucid report is included below. In anticipation of the report's conclusions and suggestions for further analysis, a few additional observations are warranted:

- County and state trends reflect the national need for cloud computing talent. A recent WSJ article identifies cloud computing as the "'number one most sought-after skill,'" according to Robert Half district president Megan Slabinski. In 2021, for example, EMSI reported the number of cloud computing job opportunities grew 31% as compared to just 8% for all other technology-related positions. These trends show that a student with a 4-year degree in cloud computing has not just regional or state-wide prospects, but national opportunities.

- Recent passage of the CHIPS act, legislation designed to increase and improve domestic microprocessor manufacturing, may suggest that the regional, state, and national workforce demand for qualified engineers will strain the supply of qualified computer programmers for the jobs that are *already* projected in EDD and other LMI data. As students in the engineering and computer science track are recruited into the electronics engineering field or into computer programming fields more directly related to microprocessor development, the supply of programmers, developers, and managers skilled in cloud computing may shrink, exacerbating the labor shortages already at play. A recent study by IBM found that 69% of surveyed businesses identified a lack of cloud computing skills among their workforce as a factor limiting business development. A cloud program like the one proposed here will play a vital role in maintaining the supply of appropriately skilled IT professionals.

- Although the COE report "recommendations" suggest the College "validate" the question of whether a baccalaureate degree represents a clear competitive edge for cloud computing job applicants, facts within the report clearly indicate the advantage bestowed up on 4-year degree holders. From the number of available positions that clearly require a bachelor's degree, to the wage outcomes that clearly distinguish AA-holders from BS-holders in the cloud computing field, evidence abounds that a new baccalaureate program would represent an incredible value for our students *and* employers.

- A compilation of recent job postings and recruitment opportunities for cloud computing workers is included in section H, Additional Evidence. Along with the COE data, those web ads serve as "evidence of job placement and/or promotion opportunities for candidates with a baccalaureate degree."

Santa Monica College

Computer Science Information Systems

Computer Science Advisory Board

May 13, 2022

MINUTES

Attendees:

SMC Attendees: Howard Stahl (Chair), Scott Bishop, Fariba Bolandhemat, Jinan Darwiche, Abbas Dehkhoda, Maral Hyeler, Dan Hurley, Joan Kang, Koda Kol, Keith Kurtz, David Morgan, Vicky Seno, Wihok Supat, Sean Vidal

SMC Student Attendees: Bishara Shamee

Non-SMC Attendees: Salomon Davila (Scopewave), Richard Korf (UCLA Computer Science), Neal Fultz (Fultz Consulting)

Call to order: via Zoom - 9:30 AM

Following quick introductions, the following topics were discussed:

Department Review and Dashboard Indicators

Howard shared various data points with the committee. Highlights included:

- A growth in WTH of nearly 40% since 2016-17
- A growth in student headcount of more than 85% since 2014-2015
- A growth in awarded certificates of more than 450% since 2014-2015
- No increase in full-time faculty in this discipline since 2001. Attendees commented that continued growth is not possible if the department continues to lack the people-power to make it happen.

Existing Courses and Programs

Howard shared information about our existing classes, certificates and degrees. Attendees commented on the vibrancy and innovation being displayed in our ongoing efforts to stay in line with industry and employment trends.

Plans for the Future

Howard shared information regarding ongoing discussions to create a Bachelor's Degree in Cloud Computing to build off our existing Associate's Degree and Certificate of Achievement in Cloud Computer. After much discussion, the following motion was presented and voted upon.

MOTION: The Computer Science Advisory Board supports the creation and development of a Bachelor's Degree in Cloud Computing as presented. Made by: Darwiche Seconded by: Seno.

FOR-18 AGAINST-0 ABSTAIN-0 Attendees support this new degree and voted unanimously to support it.

Curriculum Updates

Howard shared information regarding various curriculum updates. After much discussion, the following motion was presented and voted upon.

MOTION: The Computer Science Advisory Board supports the updates to the Web Developer degree and certificate as presented. Made by: Darwiche Seconded by: Kol. FOR-22 AGAINST-0 ABSTAIN-0 Attendees support this degree and voted unanimously to support it.

MOTION: The Computer Science Advisory Board supports the updates to the Database Application Developer degree and certificate as presented. Made by: Darwiche Seconded by: Kol. FOR-22 AGAINST-0 ABSTAIN-0 Attendees support this degree and voted unanimously to support it.

MOTION: The Computer Science Advisory Board supports the updates to the Data Science degree and certificate as presented. Made by: Darwiche Seconded by: Kol. FOR-22 AGAINST-0 ABSTAIN-0 Attendees support this degree and voted unanimously to support it.

Open Discussion

Various additional topics were discussed including the value of functional programming, Career Services and internships and the role of capstone projects in an undergraduate Computer Science program.

Meeting Adjourned: 11:03 AM