

ICT Educator Webinar Series

Cloud Curriculum Pathways in the Bay Region

October 9, 2020

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[00:00:00] Welcome

STEVE WRIGHT: Good morning, everybody. Welcome to the ICT Educator Webinar Series for the fall of 2020. I'm Steve Wright. I'm the Statewide Director for the ICT Sector Team. If you visit our website, you can see our ten Regional Directors and Nicole Sherman, who is the producer of this series and our newsletter.



We started this weekly ICT Educator Webinar Series as an alternative to attending conferences. However, one of the best opportunities for faculty training in the rapidly evolving ICT sector, summer and fall ICT conferences is put on by WASTC, which is Karen Stanton and Richard Grotegut. Right here, you can see information you need to register now for their January 7th and 8th ICT Winter Conference. We're going to look forward to that.

On our website, we currently have over 35 recorded webinars included in various different subject areas, carefully selected experts presented, how-to techniques. And every webinar is video recorded, edited, chapterized, and then transcribed, along with the PowerPoint presentation. We've got 3,500 views to date. Many of our faculty consider this an excellent source of material

for class, for grant writing, and for their research. And today’s webinar should be posted in about a week.

OCTOBER 16
How to Bring Microsoft Teams Training to Your Campus

OCTOBER 23
Google Career Certificates: Updates and How to Get Involved

OCTOBER 30
How College Faculty Can Benefit From the Self-Taught Programmer Movement

Coming up in the next few weeks, we’re looking at Microsoft Teams, which is an important skillset for a lot of companies these days in the COVID environment—anyhow really. Then we’re going to hear from Google, looking at their Portfolio Certificates that are rolling out, as well as their Employer Engagement Strategy. And then we’ll take a look at how college faculty can benefit from the self-taught program movement. Self-Taught Programmers on Facebook is fellow, Corey Althoff, who has about over 100,000 students that are teaching themselves code. So, it’s a wonderful thing to learn how they do it.

[\[00:02:01\] Today’s Agenda](#)



RICHARD GROTEGUT

Bay Area Regional Director, ICT-DM Sector



OLIVIA HERRIFORD

Bay Area Regional Director, ICT-DM Sector



RAY KAUPP

Bay Area Regional Director, ICT-DM Sector

STEVE WRIGHT: Today, we’re going to hear about the Bay Regional Cloud Computing Pathways, a development that’s being supported by our Regional Director team, and I think I’m just going to go ahead and let them switch over and take the helm.

But first, we'll do a survey and see who is out here. All right, we're about 90% voted right here. This looks good. California community colleges at 80% and lots of representation from other areas. This is good.

All right, Ray, it's over to you.

RAY KAUPP: OK. Hi, everybody. Good morning. Happy Friday. This is our topic for today, is about the Bay **Area** implementation of the cloud computing program. We refer to ourselves as Bay ICT.

- **Introductions**
- **RJV Overview**
- **Example Programs**
 - **Google Workspace**
 - **Model Curriculum**
 - **AWS Administrator**
 - **Salesforce**
 - **VR Apprenticeship**
- **Q&A**

And what we're going to do is briefly introduce the three Regional Directors up here. I'll give an overview of how this project is organized, and then we're just going to do some examples of various programs around in the area, and then we'll wrap up with some Q&A.



Ray Kaupp
Bay Area Regional
Director ICTDM



Olivia Herriford
Bay Area Regional
Director ICTDM



Richard Grotegut
Bay Area Regional
Director ICTDM

The folks who are currently the Regional Directors for the Bay Area are myself... I came from industry originally, spent time at... I started my career actually at Apple Computer, back before Apple had adult supervision, I guess, and then I started teaching about sixteen years ago and became an administrator, and now I'm a Regional Director for the Bay Area, along with my two colleagues. Olivia, do you want to introduce yourself briefly?

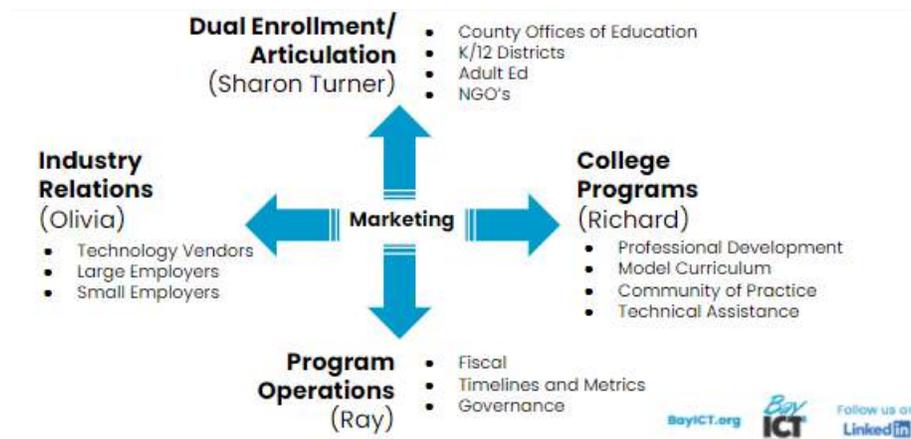
OLIVIA HERRIFORD: Sure. I also come from industry. I've been working in customer-facing organizations in tech since the mid-70s. And I joined the community college workforce development effort with MPICT in 2010, and I have been an adjunct myself since 2002, primarily teaching in MBA and business programs. I'm pretty excited now to be a part of this team, and I'm looking to do a lot more outreach to K12 and employers.

RAY KAUPP: And Richard...

RICHARD GROTEGUT: Yeah, thanks, Ray. Richard Grotegut. And I did not come from industry. I'm the permanent educator of 35 years of teaching and the last 25 in the colleges. And I think I'm the older Regional Director, having been the only one here for the first three years. I'm so happy to have Ray and Olivia on board as well.

RAY KAUPP: Great.

[00:04:51] RJV Structure & Governance



RAY KAUPP: So, this is interesting... For those who are not from the Bay Area, you're not familiar with some of this vocabulary, I think, but we have a different way of implementing regional funding, regional Strong Workforce funding, in the Bay Area. We have this process called an RJV.

RJV stands for Regional Joint Venture. In the Bay Area region, the colleges held on to most of the regional funds, and then, if you want to do a project, you have to go out to the colleges and

get them to support that project, just like you would a startup or any other kind of joint venture. So, that's what the RJV stands for.

We basically organize the activities, like all of our projects, into these categories. So, we work closely with our K12 Technical Assistant Provider, which is Sharon Turner in our case, on dual enrollment/articulation kind of activities with the secondary school partners.

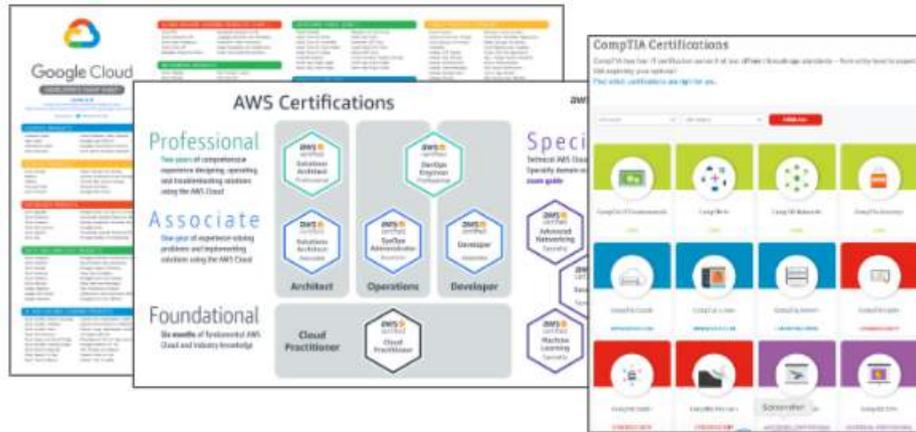
Olivia has been focusing on industry relations, so the Bay ICT Partnership itself, and she's also organized our community of practice, which you may want to join, for faculty folks.

Richard has been concentrating on professional development activities, curriculum, and then also relationships with the various technology vendors involved in the space.

And then I'm kind of the overall... I guess I function like an executive director of this particular project, so I take care of the budgeting and timelines, metrics, overall planning, and then I have a governance structure, so there are three colleges who form a steering committee, and I actually answer to that steering committee for governance issues. Those three colleges are Diablo Valley College, Foothill College and College of San Mateo.

So, it is a little different than having all the money, you know, in a pot where you kind of get to decide how to spend it. We at the colleges spend money... Some of it is in a pot with the RJV, and then the colleges spend money out of their own... On their own projects that are integrated into this overall structure. So, it can be a little complicated. There's an element of herding cats here, but it also creates a level of engagement from the colleges that I think is really valuable to the success of the project.

[00:07:45] Industry Certifications Get Jobs!



RAY KAUPP: And we have two kind of guiding principles. The first one is we believe that industry certifications are what get people jobs. It's just as simple as that. And there are so many of them. Here's just the Google Cloud certifications! Here's a few of the AWS certifications. Here's a few of the CompTIA certifications.

But in every case, we're trying to encourage programs at the colleges to structure their programs so that they're preparing students for at least some of these certifications along the way, because we believe that certifications are how folks get the job.

And then the second point is the cloud! You know, people think of the cloud as like this discreet thing. "Here's the cloud, and here's cybersecurity, and here's programming, and they're separate." They're not. The cloud is everything. The cloud is everywhere. We believe that the cloud is what computing has become.

So, we're about cloud everywhere. So, we're not just looking at cloud-specific programs. We're also looking at cloudifying existing programs.

And to give an example of one of those, we've invited Kas from Cabrillo to talk about her Workspace program. And Kas, I'm hoping you're there...

KAS PEREIRA: Hi, yeah, I'm here.

[00:09:20] Workspace at Foothill

- Resources for upskilling pandemic-displaced workers
- Google Workspace as ideal platform
- 7 non-credit short courses
- Career-pathway-adjacent

KAS PEREIRA: Hi, so I'm Kas Pereira. I'm the Teacher in Residence at the Krause Center for Innovation at Foothill College.

RAY KAUPP: I'm sorry—I said Cabrillo. I meant Foothill!

KAS PEREIRA: I live in Santa Cruz. It works. So, I'm just going to talk a little bit about our Google Workspace program. It's a new program that we've established and we're kind of working on right now. So, shortly after the pandemic hit, back in March, we started looking for ways that we could assist folks who had been furloughed or laid off because of the different closures, because we knew, obviously, some jobs are going to come back when things reopen, but a lot of industries are probably going to take a lot longer to recover, and then some people are just not going to be going back to work probably.

And we wanted to create something for these entry-level people, the people who are most likely to lose their jobs and not get them back, where they could develop some marketable skills that they could use to reenter the workforce. So, Google Workspace kind of seemed like the perfect way for us to do this.

First of all, the applications are free, right? They're cloud-based, so you don't need a specific computer or laptop. They are largely mobile friendly, so you could even actually learn them on a phone if you needed to. They're also user friendly, so there's not that initial barrier to access, where you go in and you just don't even know how to start learning what you're learning, right? So, there's a little bit of a step up. And then we're also a Google Training Partner at the Krause Center for Innovation for Google Ed, so it kind of seemed like a natural fit for us to bring this in.

So, with that in mind, we developed seven non-credit short courses centered around key Google Workspace apps with the intention of eventually combining them all into a non-credit certification program. And the curriculum for each course is modeled around Google's own training modules, but then we've augmented that with best practices and online education because that's kind of where my background comes in.

So, students can learn with multiple modalities. They can practice the skills, but then they have the flexibility to apply those to their own workplace goals or situations, so it scales for whichever direction they want to take it. They can get detailed and responsive feedback. They have on-demand access to instructors for one-to-one live help if they get stuck or they need something.

So, yeah, the general idea is that it's career-pathway-adjacent, right? So, they apply to multiple career pathways. It's not like you use Google Workspace, and then you're going to get the Google Workspace job, right? But a ton of industries will use Google Workspace. And even once you use something like Microsoft, there's a pretty big level of skill transferability there.

So, the idea is we're not creating a direct pipeline to a very specific job, but we're kind of supplementing those other pathways that have that pipeline with a skillset that applies to lots of them.

[00:12:02] Workplace: Next Steps

- **Prioritizing access for all:**
 - Fully online
 - Short duration/mix & match
 - Free
- **Coordination with Workforce Development Boards/ETPL**
- **Certificate program development, opportunities for adaptation and expansion**

KAS PEREIRA: So, at this point in time, we've written the courses. We're working on ways to schedule them. We're making sure we have adequate enrollment to justify the certificate part of the program. There are challenges, of course, as we work with a bunch of systems. There are new rules in how attendance is taken for non-credit distance-learning courses, and it's going to make

it difficult for us to create an open-entry/open-exit model, which is what we had originally planned on doing.

And Google, because they're Google, is always making something just long enough so that people get used to it and then completely changing it. So, they are scrapping their Workspace Cloud Certification in December of this year, and they're going to be spending next year 2021 developing a whole new certification program that's more geared towards enterprise. So, we're trying to remain flexible so that we can sort of accommodate the change.

But what we know we're going to do—the things that we're definitely sure about—and where we're going to go from here is we're going to, even though it makes the attendance hard, it makes the wish collection hard, we want to keep the program entirely online. We want to keep the courses primarily asynchronous but with the option for synchronous coaching at assistance from an instructor because we don't want people to have to commute or find bus fare or have scheduling conflicts or any of those issues that prevent people who have jobs and lives from being able to take one of these courses.

We also want people to be able to take them when they want to take them or when they have the time and not be limited by having to wait for the start of the next quarter a few months away, so they can get the training. So, we intentionally made every course super short. They range between three and seven hours each. Obviously, some will probably take longer if people are super new to something like Sheets, but the idea is to keep them short. And if we're not able to offer them open-entry/open-exit, then we're probably going to offer them multiple times each quarter in a overlapping pattern, so people kind of join when they're ready, and they don't have to wait, and so they can mix and match the courses according to what their interests and needs are.

And again, even though it's going to cause an attendance headache, we want to keep them non-credit because that will keep them completely free for people to take. So, beyond figuring out how to schedule everything, we're working on getting the word out and getting enrollment. We're working with local organizations. We're hoping to get our courses included on the Eligible Training

Providers list, which is what the Workforce Development Boards rely on when they're choosing to send displaced workers to get new job skills.

And finally, since Google is ending their certification, there might be an opportunity for us to build a program that fits into that niche, that hole that they're leaving there, for people who need to understand the basics of these cloud computing programs, and who are going into other industries, but they're not going into engineering or cloud engineering. So, it seems like there might be a need for people who have these skills to have some kind of certificate that demonstrates that they have them. So, that might be an option for us.

So, we're going to keep an eye on how Google reimagines their program in 2021, and we'll see if we can adapt what we have to align with what they're doing or, if it makes sense, to go in a totally different direction, given our learner population. So, yeah, we've only kind of just begun , but there's a lot of excitement to be helping people, and for the different ways that we can grow and adapt the program as we go.

RAY KAUPP: Thanks, Kas. And that was our first example program. I just wanted to point out that cloud is not just AWS development stuff. Cloud is every part of computing these days, and we're very excited about the short-duration reskilling programs, which this is clearly going to be part of. I want to turn the control over to Richard now.

[00:15:43] Transfer & Articulation System

Cloudify Model Curriculum

DESCRIPTORS COURSE REVIEW COURSES TMC RESOURCES MODEL CURRICULUM UCT

CTE Model Curriculum Worksheet – 22 January 2020 UPDATE (DRAFT)

CCC Major or Area of Emphasis: Information Technology
 CSU Major or Majors: Information and Communication Technologies, Information Systems, Information Technology

Total units 22-23 (all units are semester units)
 Degree Type (indicate one): AA-T OR AS-T OR MC

Required Core Courses: 13 units

Title (units)	C-ID Designation	Rationale
Information & Communication Technology Essentials (4)	ITIS 110	Essential Preparation
Business Information Systems, Computer Information Systems (3)	ITIS 120	Essential Preparation
Introduction to Programming Concepts and Methodologies (3)	ITIS 130 or ITIS 135 or COMP 112 or COMP 122	Essential Preparation
Computer Network Fundamentals (3)	ITIS 150	Essential Preparation

RICHARD GROTEGUT: Yeah, thank you, Ray. Hopefully, everybody can hear me OK. You know, I've been involved for some time now with the CID process and the development of the IT standard courses aligned, the skills, the competencies, and also to certification. And really nowhere under this umbrella of the cloud has there been more disruption than within Information Technology. IT faculty up and down the state have been paying attention, working together, and attempting to develop those course standards that make up the IT model curriculum.

Cloudify Model Curriculum

DESCRIPTORS COURSE REVIEW COURSES TMC RESOURCES MODEL CURRICULUM UCT

DESCRIPTOR: ITIS 130

DESCRIPTOR: ITIS 135

DESCRIPTOR: ITIS 170

DESCRIPTOR: ITIS 171

DESCRIPTOR: ITIS 172

DESCRIPTOR: ITIS 180

DESCRIPTOR: ITIS 186

DESCRIPTOR: ITIS 188

DESCRIPTOR: ITIS 190

DESCRIPTOR: ITIS 196

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So, within those courses, for the recent update, which has been vetted and approved by community colleges/CSU faculty, including cloud computing skills, was at the top of the list. So, we've been able to do that with our fundamental courses in fundamental skills and competencies to the ICT fundamentals course descriptors and programming, networking, and also in operating systems. And then updating and developing ITMC electives to directly address cloud computing fundamentals, security, operations and management, and database.

[00:17:03] Fundamental Supporting Skills

- **Fundamental cloud computing concepts/services**—What is the cloud, virtualization, business benefits, core services, pricing models, use cases.
- **Networking**—Introduction to basic networking concepts, user access, fundamental network administration, virtualization, and virtual private clouds.
- **Database**—Introduction to database concepts, provision, configure, and manage a database in the cloud.
- **Scripting/Programming**—Fundamental programming concepts (Python, Javascript, or Java).
- **Linux**—Linux systems deployment and management in a cloud environment.

RICHARD GROTEGUT: And in order to really do that, we needed to make sure we address the important fundamental skills. This list of fundamental supporting skills have been vetted by industry and addressed at our ITMC core courses.

[00:17:19] Cloud-Specific Skills

- **Cloud Infrastructure Management**—Deployment and management services.
- **Compute Engines**—Capacity, scaling, design high availability, virtualization, and virtual machines.
- **Cloud Architecture**—Architectural configuration designs and considerations, business continuity, elasticity, cost optimization, cloud migration, monitoring, and auditing.
- **Cloud Security**—Implement basic security and compliance aspects of a cloud platform and the shared security model.

RICHARD GROTEGUT: And then the more cloud-specific skills—too vetted and approved by industry—focused on certification by industry, and those are addressed in those ITMC cloud electives that I showed you earlier.

[00:17:36] Public/Private Partnership

NDG and the VMware Academy

- Cisco Academy
- VMware Academy
- NDG

The image displays five course cards from NDG, arranged in two rows. The top row contains three cards: 'Cloud and Virtualization Concepts', 'Network Virtualization', and 'Software-Defined Storage'. The bottom row contains two cards: 'Linux Essentials' and 'Linux Unhatched'. Each card features a blue header with the course title, a small NDG logo, and a brief description of the course content.

RICHARD GROTEGUT: Now, in order to do this work and to be able to keep up with the changes and making sure our courses are on top, we really need the help from our industry partners. You know, keeping up, staying up to date with the curriculum and the skills are even more important with Cisco. I put Cisco Academy at the top of the list. Next month, I'm going to begin my 24th year as a Cisco Academy instructor. You know, if you want to teach networking, this is the partnership to go on.

For cloud computing, though, however, there are other partnerships that can help. VMware and NDG, the NETLAB folks, have a series of great little mini courses in Linux, virtualization, cloud technologies... All these are free. They can easily be embedded into existing courses in your campus LMS, and they address a number of the important competencies that were discussed earlier.

Google

- Cisco Academy
- VMware Academy
- NDG
- Google

Course map



Google, too, has been involved in developing coursework, and they have things that can help you as well, along with the Google Workspace and the Google IT Support Certificate, they have a very nice 40-hour cloud foundations course that comes complete with instructor resources, numerous hands-on labs and assessments, and this curriculum and content is free as well.

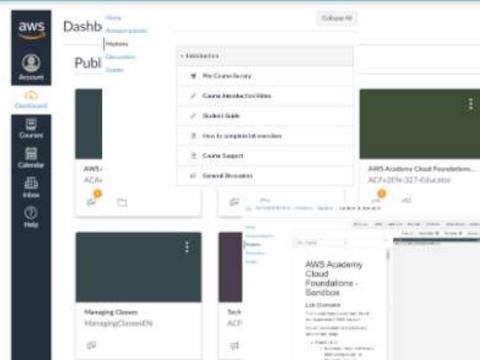
AWS Educate

- Cisco Academy
- VMware Academy
- NDG
- Google
- AWS Educate



AWS Academy

- Cisco Academy
- VMware Academy
- NDG
- Google
- AWS Educate
- AWS Academy



By far, though, I think it's been AWS and Amazon that's really stepped up. Their AWS Educate program provides incredible resources for instructors and their students. Additionally, the AWS Academy program has made great strides lately. I mean, this is the content that I'm using in the courses that I teach in cloud. They include a Canvas shell that can be easily embedded with your campus shell as well.

Includes all kinds of content that they are responsible for. They create the content, they update the content. You know, that's a tremendous load off of an instructor's list of things to do when they don't have to do and write their own labs. And most importantly, they provide a sandbox and an access to their console, the AWS Console, to be able to do the hands-on labs that are so critical and that were rather difficult for instructors to put together.

So, to provide more information on the AWS Academy program, I've asked John Lee, who is on the call, to take a few minutes to talk about the program, say a few words, and tell us about some things that are coming up that might be of interest to those of you that are looking at AWS Academy. So, John, I don't know if you're on, if you could unmute and introduce yourself...

[00:20:48] AWS Academy Program

The screenshot displays the AWS Academy website interface. At the top left, there is a blue header with the text "AWS Academy". Below this, on the left side, is a list of partner academies: Cisco Academy, VMware Academy, NDG, Google, AWS Educate, and AWS Academy. The main content area features four "Course Outline" cards, each with a title and a brief description:

- Course Outline: AWS Academy Cloud Foundations**
Course Version: This course outline applies to version 1.0 of AWS Academy Cloud Foundations in English. Status of changes from version 1.0 are available in the Instructor Guide.
Description: AWS Academy Cloud Foundations is intended for students who seek an overall understanding of cloud computing concepts, independent of specific technical roles. It provides a detailed overview of cloud concepts, AWS core services, security, architecture, pricing, and support.
- Course Outline: AWS Academy Cloud Operations**
Course Version: This course outline applies to version 1.0 of AWS Academy Cloud Operations in English.
Description: AWS Academy Cloud Operations is designed to prepare participants to successfully install, configure, support, and troubleshoot AWS services. It will also help prepare them to take the AWS Certified Administrator - Associate exam. Programmatic responsibilities in the AWS Cloud and recommended design patterns. This course will teach students how to solve problems and troubleshoot common scenarios. The course will also introduce how to create customizations and reusable deployments of services and systems on AWS infrastructure. AWS services and tools related to configuration and management. AWS use cases and demonstrations. Students will learn how some AWS customers design their infrastructure and implement various design and services. Students will also have the opportunity to build a variety of infrastructure-oriented hands-on activities.
- Course Outline: AWS Academy Cloud Computing Architecture**
Course Version: This course outline applies to version 1.1 of AWS Academy Cloud Computing Architecture.
Description: Cloud Computing Architecture is an AWS Academy curriculum designed to help students develop technical expertise in cloud computing and prepare them for the AWS Certified Solutions Architect - Associate certification exam. The curriculum is delivered through instructor-led classes, knowledge assessments, hands-on labs, and project work. Students have access to course materials, online knowledge assessments, hands-on labs, a final practice certification exam, and a discount voucher for the certification exam.
- Course Outline: AWS Academy Cloud DevOps**
Course Version: This course outline applies to version 1.0 of AWS Academy Cloud DevOps in English.
Description: AWS Academy Cloud DevOps is designed to help students gain technical expertise in development, testing, cloud technologies and prepare them to take the AWS Certified DevOps Engineer - Associate and AWS Certified Solutions Architect - Associate exams. The curriculum is delivered through instructor-led classes, knowledge assessments, and hands-on labs. Students will also have access to course materials, online knowledge assessments, a final practice certification exam, and a discount voucher for the certification exam.

JOHN LEE: I am. Thank you, Richard. I'll just take a couple minutes here. My name is John Lee, AWS Academy Program Manager, and Richard was gracious enough to give me a few minutes and also sharing on the screen what you see about programs.

Basically, for those of you... Many of you, I know you're already on it and use it. Some of you may be new. But AWS Academy was created to address the question: *Where will the next generation of cloud computing professionals come from? And how do we address the need?*

So, our answer is to work collaboratively with the higher education institutions and with industry to deliver an embedded skills pathway that prepares students for cloud computing in IT roles. And AWS Academy is committed to closing the skill gap that exists today, and we provide education institutions with free cloud computing curriculum and resources that largely map to industry-recognized AWS certifications:

- Cloud Foundations
- Cloud Developing
- Cloud Operations
- Solutions Architect
- And others

And many institutions across the United States, many California Community Colleges, are currently members of the Academy and building out what I call (and I think what's becoming more popular) cloud computing certificate or degree programs.

As a number of speakers this morning mentioned already, everything now is pretty much cloud, and that's helpful in developing an academic program towards it. We're working with AWS Educate and Academy together to help build cloud computing programs, whether it be courses, certificates, curriculum, or a whole program. So, hopefully, we'll have an opportunity to share more later at another time. Thank you for the opportunity.

RICHARD GROTEGUT: Great. Thanks, John. I was happy to learn that John Bjerke, whom I worked with for many years with Cisco Academy, is now part of the AWS Academy team as well. I don't know if John is on the call or not, but it's great to have him, too. And working together, I think we can really help instructors be able to deliver the content that they need today.

[00:23:17] Cloud at Foothill

2: Cloud at Foothill
Mike Murphy, Bob Sandor

Past Offerings:

- 79A Summer 2018
- 79A Summer 2019
- 79A 2019/2020
- 79B Winter 2019
- 79C Spring 2019
- 79D Summer 2019

Current Offerings:

- 79A Each quarter
- 79B Fall
- 79C Winter
- 79D Summer

- Always waitlisted on Opening-Day
- Averaging 45 students per course
- Hugely diverse classes
 - High school
 - Advanced
 - 2 year AA
 - 4 year University
 - Continuing ed- career changes
 - Professionals seeking to understand Cloud from business implementation perspectives
 - Students will come from all over US paying out of state tuition to attend the course
- Classes developed for both online, face to face, synchronous and asynchronous delivery



RAY KAUPP: Our next example is a segue directly out of this last bit here. I'm hoping Mike and Bob are on the call and can unmute themselves and talk a little bit about the cloud computing program evolution at Foothill College.

MIKE: Thanks, Ray. I think we're both here.

BOB: I'm here, too.

MIKE: So, I got involved with the Santa Monica folks relatively early. I taught the first Santa Monica course a couple of times, but here is the list of classes that we're teaching at Foothill. Yeah, these are the past offerings—I'm sorry. So, I taught the beginning class a couple of times early in both 2018 and 2019.

The curriculum has been very popular. The classes have been pretty much waitlisted at opening day for every class we've offered so far. We've ended up with about 45 students per class at census day, and we've got a hugely diverse population in the classes, which makes it very challenging. We have students that virtually know nothing. We have people that know a lot more than I do. So, it's a very, very broad group of people. You really need to know something about

virtualization and something about networking when you come into the classes, so, it's been a challenge to really get everybody on kind of an equal footing.

Our classes are being offered online, face to face, and hybrid. We have this new mode that I'm sure all of you are using, this face-to-face synchronous, which is online delivery, and then the asynchronous delivery, which is our typical program.

The shells we're using were all provided by the courtesy of the folks at Santa Monica. They provided the Canvas shells, and we've made substantial modifications to them because it's a moving target, and we also are trying to personalize them to what we're doing. And if anybody is interested, I can certainly make the Foothill shells available if someone wants them.

[00:25:36] Lessons We Have Learned

Lessons We Have Learned

New Certificate of Achievement

- **30A** Introduction to Linux
- **50A** Introduction to Networking (Cisco CCNA I)
- **55A** Introduction to Cloud Computing in Amazon Web Services
- **55B** Database Essentials in Amazon Web Services
- **55C** Compute Engines in Amazon Web Services
- **55D** Security in Amazon Web Services

- AWS is a moving target, it is very challenging to keep the courses up to date
- The students learning came through the Lab Assignments and Projects
- Need to establish baseline of knowledge to give perspective
- Our Certificate of Achievement was approved starting Summer 2020, we have had 5 applicants so far
- We have had several students independently obtain AWS Cloud Foundations Certificate



MIKE: So, we just got a certificate of achievement approved, and the courses that are in this particular certificate of achievement are the Introduction to Linux, the first Cisco CCNA class, and the four cloud classes. The cloud classes are an intro class, a course focusing on the AWS Database offerings, primarily RDS and DynamoDB, a course on compute engines, which is not only EC2, but it's virtually all of the AWS compute services, and then a rather detailed course on security.

The learning... OK, moving targets. So, clearly, AWS is a moving target. Interfaces change, and actually services seem to come and go, so it's been a real challenge for us (or me at this point) to keep coordinated with what's going on in the program.

Bob Sandor joined us at Foothill... I believe it's been a year ago, and he's been teaching the introductory class and will start teaching the more advanced classes starting next quarter. He's going to be teaching the compute class next quarter.

The learning in these classes all comes through the lab assignments and projects, and they're challenging because some of the lab assignments that were in the courses that came from Santa Monica are either no longer current or actually no longer available, so we're having to... It's sort of a moving target. AWS, like I said, changes constantly.

We're trying to figure out what a good baseline of knowledge is, and we're not going to put prerequisites on these classes. We just don't do that in our department, but we may get advisories and be more picky on the advisories.

We've had five students apply for the certificate of achievement, just because it just became available, and I'm sure they're all going to be approved. We've been processing them. We've also had a number of students get their AWS Cloud Practitioner... Well, it's actually the Cloud Practitioner Certificate. We've had a number of students going through our program that have done.

[00:27:53] Future Plans



Future Plans

Summer 2021 Additions

- 550 AWS Academy Cloud Foundations
- 55J AWS Solutions Architecture

- We will continue to make substantial changes to the Santa Monica Courses
- We will add two classes to the Program in Summer 2021
- We currently plan to offer all six of the classes
 - We will recommend the C S 55A to D sequence to all but experienced AWS practitioners
 - We will recommend the AWS Academy classes to students who complete the C S 55A to D sequence and also to experienced AWS practitioners



MIKE: So, future plans... We're going to continue to enhance Santa Monica courses. Now, something that I would love to do—if we could somehow get a little group going, I'd love to have partners with maintaining these courses.

I think arguably these courses are really much better courses for beginners than the certification courses. In my mind, the certification courses, the Academy courses, really require some base knowledge before you can be successful in them. So, we're going to recommend that our beginning students go through the four 55A, B, C, and D series, and our experienced students go ahead and start immediately with the AWS Academy courses.

I've got the Academy Cloud Foundations and the Academy Solutions Architecture class both approved. We won't be able to teach them until summer of 2021. We have a rather long, arduous curriculum process at Foothill. And we intend to do... We intend to follow the Academy offerings, and hopefully, we will have more classes in the future

RAY KAUPP: I do want to mention one thing, although it's not really integral to this presentation. Mike was talking about having a group of folks to work on things collaboratively, and Olivia is leading the development of a community of practice for faculty people that all folks are welcome to, in the ICT/Digital Media area, and I think that would be a perfect opportunity for that group to get together. There's infrastructure there to support those kinds of activities. Olivia, do you want to say just a word or two about the community of practice for a minute or so here?

OLIVIA HERRIFORD: Yes, please. And thank you for bringing it up, because this is how we hope to continue to do other types of collaboration in the region. So, if you're interested and want to participate in an endeavor like this, just go to our BayICT.org website and to the faculty page, and there is a form there with which you can let us know you want to participate in the community of practice.

This is also going to be the vehicle in which we will be collaborating with the rest of the partnership with our employers, when we start doing... You know, getting their input to curriculum

across all of the other programs as well. So, I urge you to get on the list so that we can get you set up. It's a Canvas site, so that's why we need you to let us know that you want to participate.

RAY KAUPP: Great, thanks.

[00:30:47] Salesforce at Cabrillo

3: Salesforce at Cabrillo Jennifer Vered

- CRM Certificate program, using Salesforce as the teaching tool
- 14.5 units, including Customer Relations, Information management, Advanced spreadsheets, and social media for business
- 6 courses, can be completed in 1 year
- 85% of content for SF Administrator certification



RAY KAUPP: Our next example I am really excited not to need to talk about this because I noticed that Jen Vered has jumped onto the call.

JEN VERED: Hi, good morning. My name is Jennifer Vered. I'm from Cabrillo College. I'm the department chair from the CABT department (computer applications and business technology). We have quite a few certificates going on, and one that Ray wanted me to talk about was our Salesforce or our CRM certificate.

And we are in the process of submitting that to the state as a certificate of achievement and also trying to make it available in a one-semester format because it is quite a bit of units for our students. So, trying to condense it so that it can be done in a shorter term...

It currently contains six courses and can be completed in two semesters, but we'd like to either move it into the one-semester format... Also, we are thinking of adding in an Outlook class as these students need those kinds of base skills of communication and email management to kind of understand a lot of the things that go on in Salesforce.

Some of the issues that we've run up against are similar to what Mike Murphy was talking about—just a real diverse group of students and their diverse knowledge base. So, students really

need to come into a certificate program like this with some basic business communication background, some business concept, computer skills, so just throwing them in there without much experience is very challenging.

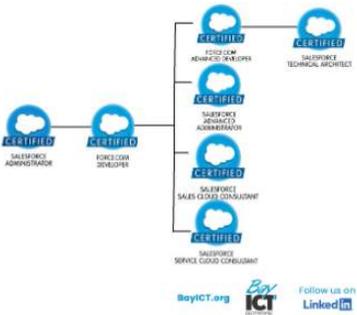
That’s where we are. We are also looking at modifying the classes a bit and updating the curriculum. We’ve been working on... We’ve run these classes a couple times now, our Salesforce classes, and we have feedback from the instructors and the students about what’s challenging for them, what additional resources they need, what might need to be moved around, so we’re working on that curriculum as well because it’s all pretty new for us.

RAY KAUPP: I did want to point out that when the Salesforce... When the folks from Salesforce went over the curriculum on the detailed course outline, it looked like it was, you know, almost every single thing that somebody needed in order to pass the Salesforce Administrator Certification. So, it’s really, really close to covering every single thing that somebody needs to pass that.

JEN VERED: Yes, yes. We have some limitations in terms of including these classes in our degrees and certificates, in terms of units and time, so it’s all about juggling that when we’re planning and programming these classes.

[00:34:10] Next Steps

- Register current program with ETPL
- Include the final 15%, to prepare students for certification
- Create a short-duration version for the displaced worker reskilling program



JEN VERED: Yes, so we are in the process of getting it registered, and perhaps we could include an additional third level that would include that end certification for that certificate. And as I mentioned, yes, creating a short-duration version, and we have to figure out how that would

work—again, working with Ray and the powers that be to perhaps batch enroll students in a group program.

RAY KAUPP: Interesting to hear my name in the same sentence with ‘powers that be!’ But Jen has pointed out some of the incredible challenges. You know, there’s this big push right now for these short-duration reskilling programs, and I think there are a ton of challenges around pulling that off.

JEN VERED: Yes. Because we want them to succeed, yeah. I mean, that’s the thing, is that, yes, we can condense the programs down, but we want to make sure that they’re coming into the program prepared enough to succeed and that it does give them enough time to actually comprehend all of these new skills. So, you know, there’s those two sides to the coin.

RAY KAUPP: Great. Thanks, Jen.

JEN VERED: Thank you.

[00:35:39] VR Apprenticeship at Marin

4: VR Apprenticeship at Marin Alex Jones

Labor market demand for workers to create the environments used in VR applications

Currently a DOL registered apprenticeship program

Integrated with pre-apprenticeship activities with local secondary education partners

Working with college automotive program



RAY KAUPP: And then our last example—and unfortunately, Alex can't join us right now, but I've been working with him on this project, so I'll talk through this one.

College of Marin has put together an apprenticeship program for virtual reality, which I think is just a fascinating program. There's an incredible labor market demand for people in the VR development side of things, and some of that development is, you know, pretty high levels of education through masters degrees and PhDs on modeling and simulations and stuff, but there's a bunch of jobs in this industry that are going lacking for the folks who create the environments that are used in VR, and it turns out that that's a relatively short-term educational pathway.

And what Alex has done is created a Department of Labor registered apprenticeship for a VR developer at College of Marin, and he's also integrated it with a set of pre-apprenticeship activities at the high schools up there in the North Bay so that students... So, he's building a pipeline into this apprenticeship program, and there's a short video here. I'm going to go ahead and run it to give you a sense of how this gets used in instructional programs in other CTE instructional programs.

VIDEO: After trainees log in, they move at their own pace through the hands-on learning simulations. The simulations allow trainees to gain experience, make mistakes, turn the compression gauge clockwise, and build confidence in their abilities. During the instruction, trainees interact with a virtual coach to develop their skills. Great work! The trainees then demonstrate their knowledge through hands-on practice.

The trainees receive a comprehensive foundation in automotive fundamentals across a broad range of topics, ranging from simple oil changes to brake pad service. Trainees gain an understanding of safety considerations to prepare them for the workplace.

Simulation-based training can happen wherever and whenever needed, without expensive industry equipment or expert personnel. Trainees progress is tracked and is immediately available for instructor review.

[00:38:16] Next Steps



Next Steps

- Expand capacity to meet labor market
- Work with addition CTE programs
 - Healthcare
 - Construction
 - Hospitality
- Create a cloud-based repository for VR instructional assets

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RAY KAUPP: So, you sort of see how you can take a classic brick-and-mortar program and take at least some percentage of the lab work that would be done in a physical lab and move it to virtual reality. Every piece of that hands-on work that you can move into the virtual world represents huge savings in terms of facilities. And in many cases, the key gating factor in the number of students who can go through those CTE programs is that physical lab. So, whatever you can do to free up the physical lab, obviously, is good news.

Alex is currently applying for grants to expand this program, and part of that is to expand to meet the labor market for the development of the virtual reality environments, but the other part is working with additional CTE programs to create VR materials that could be used in our CTE programs around the state. You know, some of the obvious candidates: healthcare, construction... Hospitality is kind of interesting, transportation.

And there's this idea, sort of a bigger idea, that we could have our virtual reality apprentices through instructional programs creating instructional materials for other CTE programs around the state, and create a cloud-based repository for those materials that could be shared widely.

So, kind of a really creative and innovative program that's happening up at College of Marin, and I'd be happy to connect you with Alex, and he sent his regrets on not being able to make the call today.

[00:40:17] Wrap-Up & Questions

- bayict.org
- Ray Kaupp — ray@baccc.net
- Olivia Herriford — olivia@baccc.net
- Richard Grotegut -- rgrotegut@gmail.com

RAY KAUPP: So, the idea behind this presentation was to give you a sense of how we think about cloud in the Bay Area region, to give you a peek into how we've sort of organized some of our activities, and then to just showcase a few examples of programs. This is by no means every cloud program in the Bay Area. It's just a few examples that show the range of things that we're doing in cloud from the work with Google Workspace, through the AWS work at Foothill, and into virtual reality at College of Marin.

I did want to leave time... I haven't been following in the chat box, but I suspect that there are questions in the chat box. So, we're at that point. I'll put this slide up for a second, and you can see our email addresses. Any one of us can answer specifics on the overall program. I'm probably the best contact person. On things about employer engagement and community of practice activities, you're going to want to talk to Olivia. And on items about curriculum and specific technology vendor relations, Richard is your person to talk to. There's our contact information/email addresses. And at this point, I'm going to get out of the slides and—

STEVE WRIGHT: I think it might be a good time to run that little survey, Ray.

RAY KAUPP: Oh, I'm sorry, Steve, yeah.

STEVE WRIGHT: Yeah, we have a little survey to find out where the audience here is in terms of their curriculum development, and I appreciate what has been shown here. We'll get to the questions in a second.

This is incredible work that's happening in the Bay Region. The idea was to share successes and challenges, and we're going to do another one of these on the southern California piece probably after the new year.

RAY KAUPP: So, Steve, it looks like we've got about ten minutes left, if I'm reading this right.

STEVE WRIGHT: Yeah.

RAY KAUPP: And just looking through the chat box to try to pick out the questions and who might answer... Let's see—Trevor is asking the question: *Distinction between certificate and certification?*

So, this is one of those vocabulary things. And just so we're all using the words the same way, I always thought a certificate was something that the college issued. A certification is something that's accredited by some industry or industry group. So, that's my understanding of the distinction between those two.

RICHARD GROTEGUT: Yeah, there's a little blurring of that, Ray, between industry... Like the Google IT Professional Support is a certificate. So, students taking that from Google just need to complete the five-course sequence, and they get the certificate. There's no certification exam at the end. So, certification does have—

RAY KAUPP: But you do have to successfully complete the course.

RICHARD GROTEGUT: The courses, yeah. So, that's similar to what we do in academics, but it's offered by Google. Certification is where there is an exam you have to pass to meet the certification requirements.

RAY KAUPP: AWS Academy... The Academic Alliance Program for Salesforce... See, I'm not sure if Jen is still on the call, but the program at Cabrillo used a lot of the trailhead material from Salesforce for the curriculum in that.

RICHARD GROTEGUT: Yeah, Salesforce does have an Academic Alliance Program, which is kind of a broad umbrella for some of their givebacks. I mean, the Academy is a fairly popular approach by companies to engage in the nonprofit world.

RAY KAUPP: And then we have a question from Abigail that looks like it's for Mike.

ABIGAIL: Yes, can I ask the question?

RAY KAUPP: Sure.

ABIGAIL: It sounds like before the AWS Foundations certification that students need to have some basic knowledge. So, I hear that different schools are offering different classes to give that knowledge, but would just going by the Cloud+ curriculum... If you did that one class to learn the Cloud+ curriculum, then take the AWS Foundations? Does anyone have a thought on that?

RICHARD GROTEGUT: Yeah. I think that would be helpful, certainly, Abigail. I think that would be good. You know, we did mention that there are some fundamental skills beforehand in networking and operating systems. Some knowledge of virtualization is really helpful before you move into that first course. You know, students often want a quick turnaround, though, and we do have students who come in with those prerequisite skills already. But yeah, no, all that is very helpful.

[crosstalk]

BOB: And if I could add in, too... Go ahead, Mike.

MIKE: OK, first of all, we did the 55A, B, C, and D long before we got involved with AWS Academy. So, 55A, B, C, and D, we're hoping, are very, very close to preparation for the Solutions Architect. It's way overkill for the Cloud Foundations.

RICHARD GROTEGUT: Yeah.

BOB: And if I could kind of chime in... The AWS Cloud Foundations Certification is much more aligned to kind of business and IT than it is around computer science. So, yeah, it's a professional

certification, and it's meant for executives who their companies are involved in cloud computing, and they want to gain an understanding of the components that their engineers are building.

So, it doesn't necessarily assume real technical skills. However, if you're a student and you want to get involved in it and you want to take it, you will get much better perspective on the materials you're learning if you have a brief understanding of networking and basic computing and virtualization. So, yes, there's no prerequisite there, but it's a prerequisite of comprehension and understanding more than it is just passing the certification.

RICHARD GROTEGUT: Yeah. Thanks, Bob. That foundations course is also helpful for the next course to get into the architecture course, too.

BOB: Yeah, and it's a prerequisite, essentially.

RICHARD GROTEGUT: Yeah. You know, we sort of did away with prerequisites in teaching our courses because they were a barrier at the colleges for students who have skills already and want to come in. So, it makes it tough because we have to do counseling for students who come in and may not have those skills and advise them. It's a little more work, but it helps with our enrollment if we don't put up those barriers.

RAY KAUPP: And as you're talking about this, it reminds me of a challenge that Mike and I were talking about yesterday on the computer science programming side of things, which we sometimes don't pay that much attention to because of the split between transfer versus career education stuff. But the need to cloudify those computer science pathways up into the transfer into bachelor programs and beyond is also, I think, a critical component of what we're trying to do with cloudifying our curriculum across all aspects of it.

So, I put a couple of notes over in the chat box. We do have a website, BayICT.org, that we've just started. We're using that for our employer engagement activities, and then also we're listing programs there, and that will continue to expand. I encourage you to take a look over there. And if you see something over there that looks goofy, please let us know because we're trying to... Like I said, we just launched it, and there's still quite a bit of work to do.

And then we also have Bay ICT on LinkedIn. So, it's pretty easy to go onto LinkedIn and just follow Bay ICT. That way, you would be updated on activities that we're doing here in the Bay Area region. And at this point, with a minute or two left, I'm going to turn it back to Steve to tie a bow on the webinar today.

STEVE WRIGHT: Well, you know it's hard to tie bow around this one. You ever have one of those Christmas presents that just defied shape and form, and you have this wrapping paper, and you're sitting there saying, "Well, do I try to wrap around it? Or can I get a bag and put a bow on it?" And this is what this reminds me of, because we still have a huge number of different ways to go with cloud.

All of us, I think, are adjusting to it as the industry grows like crazy, so I definitely echo the comment that a fundamental core curriculum is probably a good thing for all of us to be aware of and to share. I think Richard has identified that already, and it also overlaps pretty well with our cybersecurity efforts... So, I think to the extent that we can look at those core courses as being something to draw from and then build on these different unique academies that are out there.

And I think we're in a wonderful position of being able to work with so many vendors who have products, but we'll have to keep an eye on the market and listen to our students and listen to our employers. And I don't think you can go wrong with having four different colleges supporting four different types of cloud platforms because I think the market is that big. So, I'm not sure if that puts a wrapper around anything.

I think a lot of people, including our Chancellor's Office, would like to see this thing simplified, so we can come up with one or two pathways for everybody to say, "This is what we're doing for cloud!" and I'm not sure that we're seeing that as a possibility yet. Maybe. Anybody want to comment on that one?

RICHARD GROTEGUT: It's just, you know, cloud is computing, and computing is broad. It affects everything, so there's no simple solution really to teaching it.

STEVE WRIGHT: Well, I'm glad of the effort that everybody is doing. I mean, all this gives me goosebumps when I hear about all the work that's being done out there and how much heart and soul goes into these efforts by the faculty and the administrations at the different colleges, and you all are to be commended for doing the right thing because I know you don't get a bonus for doing this stuff right! You just get a successful job well done, and I hope we all feel good about that.

And I'm going to take advantage of that high note to go ahead and wrap this up. If there are any questions left in here in the chat or whatever, I'm sure Ray and Richard and Olivia can do their best with the attendees we had to get back the information. Thank you all very much!