Best Practices for Building a Diverse Pipeline of Cloud-ready Talent

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Overview

• What is the cloud?
• Cloud skills gap in Florida
• Building cloud talent at Miami Dade College
What is Cloud Computing?

"Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model is composed of five essential characteristics, three service models, and four deployment models."

Source: NIST SP 800-145

"Cloud computing is the on-demand delivery of IT resources over the Internet with pay-as-you-go pricing. Instead of buying, owning, and maintaining physical data centers and servers, you can access technology services, such as computing power, storage, and databases, on an as-needed basis from a cloud provider like Amazon Web Services (AWS)."

Source: Amazon Web Services
COVID-19 Pandemic Crisis

- The pandemic’s reallocation shock has caused more than 31 million Americans to rely on unemployment benefits (U.S. Department of Labor, 2020).

- A recent study conducted by the University of Chicago estimates 32-42% of these layoffs will become permanent, which will be felt more acutely by racially minoritized communities (Barrero, Bloom, & Davis, 2020).

Cloud Job Market

- Significant shortage of experienced cloud professionals with 63% of U.S. organizations expecting this gap to widen in the next two years (E. Sayeh, 2020).

- Cloud migration has accelerated, and companies around the world are investing in their future with the cloud. The gap in cloud skills has doubled in the last three years. A recent study reveals that 87% of enterprises will accelerate their cloud migration in the post-COVID-19 world [LogicMonitor, 2020].
2020 Top 5 Job Skills In-Demand

Machine Learning
Artificial Intelligence
Cloud Computing
Data Science
Programming Language

Source: https://www.comptia.org/blog/top-it-skills-in-demand (2021)
Building cloud talent with AWS at Miami Dade College
About Miami Dade College (MDC)

- 100,000+ students
- 91% minorities
- 57% women
- 57% low income
- 12,000+ degrees awarded
NSF Advanced Technological Education grant (Award# 1801024)

Providing students with cloud computing literacy skills to increase the number of certified cloud computing technicians from underrepresented minority groups to meet local and national workforce needs in partnership with leading cloud industry AWS.

Forbes magazine (2017) ranked Amazon’s AWS Certified Solutions Architect - Associate certificate within the 15 Top-paying IT certifications in 2017, with a median salary of $119,233.
Partnership Rationale: AWS Academy helps close the gap

AWS Academy provides higher education institutions with free, ready-to-teach cloud computing curriculum that prepares students to pursue industry-recognized certifications and careers in the cloud.

- Curriculum developed and maintained by AWS
- Post-secondary program integration
- Aligned to AWS Certification
- Employment readiness
AWS Cloud Certifications

Professional
Two years of comprehensive experience designing, operating, and troubleshooting solutions using the AWS Cloud

Associate
One year of experience solving problems and implementing solutions using the AWS Cloud

Foundational
Six months of fundamental AWS Cloud and industry knowledge

Specialty
Technical AWS Cloud experience in the Specialty domain as specified in the exam guide
MDC Cloud Education Journey with AWS

- **Summer 2018**: Faculty professional development
- **Fall 2018**: Development of courses and programs
- **Spring 2019**: Cloud Computing Center
- **Summer 2019**: Summer Cloud101 bootcamps
- **Fall 2019**: Launch of the Cloud certificate
- **Spring 2020**: Students trained and certified
- **Summer 2020**: Students placed
# Faculty Professional Development with AWS Academy

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
<th>Step 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution completes the membership application (online)</td>
<td>Institution nominates educator(s) for accreditation and drafts instructional plan (online)</td>
<td>Educators take complimentary educator accreditation training</td>
<td>Educators pass AWS Certification exams, do the teach back to a technical assessor, and are accredited to teach</td>
<td>Educators deliver course content to students</td>
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</tbody>
</table>

Source: [AWS Academy](https://aws.amazon.com)
Course Development

Creation of new credit courses with cloud computing focus:

• **Cloud Essentials** introduces AWS cloud basics and foundational cloud terminology.
• **Cloud Infrastructure & Services** introduces AWS essential services and their applications in architecting complex business solutions.
• **Cloud Capstone** pairs students with industry project mentors building real-world cloud solutions (remotely).

“Cloudification” of existing courses: with cloud computing related:

• **Databases** introduces deployment of various relational (Amazon Relational Database Service) and non-relational (Amazon DynamoDB) databases.
• **Linux** provides access to multiple Linux virtual machines and labs, giving opportunities for risk free exploration of the manipulation, installation, and utilization of Linux tools via AWS Cloud9 IDE.
• **Networking** provides fundamental understanding on how networks, IP addressing, and security all work to connect to compute resources.
Enterprise Cloud Computing Courses

- Cloud Essentials (4 cr.)
- Linux (4 cr.)
- Networking (4 cr.)
- Databases (4 cr.)
- Cloud Infrastructure and Services (4 cr.)
- Cloud Computing Capstone (4 cr.)

Additional Certifications:
- AWS Certified Cloud Practitioner
- AWS Certified Solutions Architect Associate
- CompTIA Linux+ Certified
- CompTIA Network+ Certified
Stacking Cloud Programs within MDC Degrees

Source: MDC Cloud Credit Programs
How We Built a K-16 Cloud Computing Pipeline

**Cloud101:** No-cost 2-week program to expose high school students to cloud computing. Cohort of 25 to 30 participants
Student Placement

- Roundtable with local companies
- Capstone projects/internships
- Entry-level positions

Students in the program who certified in AWS Cloud Practitioner and/or AWS Solutions Architect received internship and full-time job offers from Belle Fleur, Amazon AWS, Intel, Telefonia, Disney, Florida Power & Light, Generation USA, Presidio, and more.
Faculty Professional Development

- Trained 16 faculty in cloud computing
- 9 faculty are certified in AWS Cloud Practitioner
- 9 faculty are certified in AWS Solutions Architect – Associate
- 3 faculty are AWS Certified Developer (1), Big Data (1), and Security (2)

Cloud Program Development (Fall 2019)

- College Credit Certificate in Enterprise Cloud Computing
  Number of credits: 24; Duration: 8-11 months
- AS degree in Networking Services Technology with concentration
  Number of Credits: 60; Duration: 2 years

Student Success

- 98 students enrolled in the Enterprise Cloud Computing programs
- 74 AWS Certified Cloud Practitioners
- 39 AWS Certified Solutions Architects
Cloud Computing Initiatives

Overview

Phase 1: DECCI
- Summer boot camps at no cost
- Field trips
- Industry networking sessions
- College Credit Certificate in Enterprise Cloud Computing
- Preparation for industry certification exams

Phase 2: ECHO
- College Credit Certificate in DevOps and Data Analytics
- Cloud On Demand ümmite
- Preparation for industry certifications exams
- Workforce (re-) entry preparedness

Questions?
Contact us at cloudcenter@mdc.edu

Visit us at https://www.mdc.edu/cloudcomputingcenter/cloud-computing-initiatives/