



# Cyber Security Curriculum

Community College Cyber Summit  
2014

# Outline

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- Methodology
- Results
- Discussion/Conclusion



# Introduction

- San Bernardino Valley College
- Computer Science
- Computer Information Technology
- Cisco Academy
- Student Club
  - National Cyber League
  - CCDC

# Goals

- Curriculum
  - CAE/2Y
  - Approved by State Chancellor California Community Colleges
  - Transfer to California State University (CSU)
    - CSU San Bernardino
  - Aligned with Standards & IT Certifications
  - Employment Opportunities for Students
  - Articulated K-12

# Goals

- Notes
  - California Transfer Model Curriculum
    - <http://www.c-id.net/>
  - ICT Curriculum is still Draft
    - <http://www.c-id.net/docs/DRAFT ICT MC Dec20 2013.doc>
  - ACM Draft IT for Community Colleges
    - <http://www.capspace.org/uploads/ACMITCurricularGuidance28May2014.pdf>

# Goals

## AS-T Information and Communications Technology

### Required Courses

C-ID	Description	Certificate(s)
ITIS 110	ICT Essentials	CompTIA A+
ITIS 120	Business/Computer IS	N/A
ITIS 130	Intro to Programming	N/A
ITIS 150	Computer Network Fundamentals	CompTIA Net+

# Goals

## AS-T Information and Communications Technology

2 Courses from this list (courses used marked with \*)

C-ID	Description	Certificate(s)
ITIS 140	Systems Analysis & Design	N/A
*ITIS 155	Systems & Network Administration	CompTIA Server+
*ITIS 160	Intro to IS Security	CompTIA Security+
ITIS 180	Database Management	N/A
BIS 115	Business Communications	N/A

# Research

- Academic Literature
- Student Employability – General IT
  - Experience, Education, & Certifications
  - Disconnect between employers & academics
    - Experience
      - Employers rank #1
      - Curriculum designers ignore it
    - Education – Students prepared for entry-level position
      - Employers < 50%
      - Academics > 75%



(continued)

## – Controversial Certifications

- University-level Credit
  - Not academic
  - GPA best predictor for student success
  - IEEE and ACM support
- Use in hiring
  - Supplement and/or supplant degrees
  - HR rates higher than IT
  - Screening tool
  - Wide range attitudes

# Hypotheses

- Map CAE/2Y
  - AS degree for Transfer Students
    - AS-T ICT courses only
    - AS-T ICT courses + other General Ed courses
  - Non-transfer AS degree + Certificate
    - Articulate with K12
    - Use mostly transfer courses
    - Industry Certifications
    - Prepared students complete
      - AA in 2 years
      - Certificate in 2 semesters

# Methodology

- Mapping XL worksheets
  - Tweak the Workbook
- Draft ICT courses
  - common sense
- Industry Certifications
- Textbooks

# Results

- Failed to reject AS-T  $H_0$ 
  - Basic Data Analysis
  - Missing KUs
  - K12 Articulation
- Reject non-transfer AS and certificate  $H_0$

# Results

## Details

### AS-T

- Basic Data Analysis
  - No ICT required TMC Courses
  - Can be met with Statistics Course
- Other KUs
  - 15 topics not covered

# Results

## Details

### AS-T

- SBVC has no “scripting” class

# Discussion

Adding a course to TMC is infeasible

- Change from 3 to 4 units
  - ITIS 155 (Sys Admin)
    - Add PowerShell (Windows)
  - ITIS 160 (IS Security)
    - Pickup remaining 14 topics

# Discussion

IT Certifications help K12 articulation

- Alternate courses for Certificate & non-Transfer AS
  - ITIS 150 (Networking)
    - Alternate Cisco Academy first 2 semesters
  - ITIS 160 (IS Security)
    - Alternate Cisco CCNA Security



# Conclusion

Elephant in the room ...

- Work experience



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