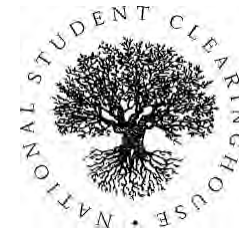




Empowering The Mobility of Digital Academic Records

Spring Summit – 4th May 2017

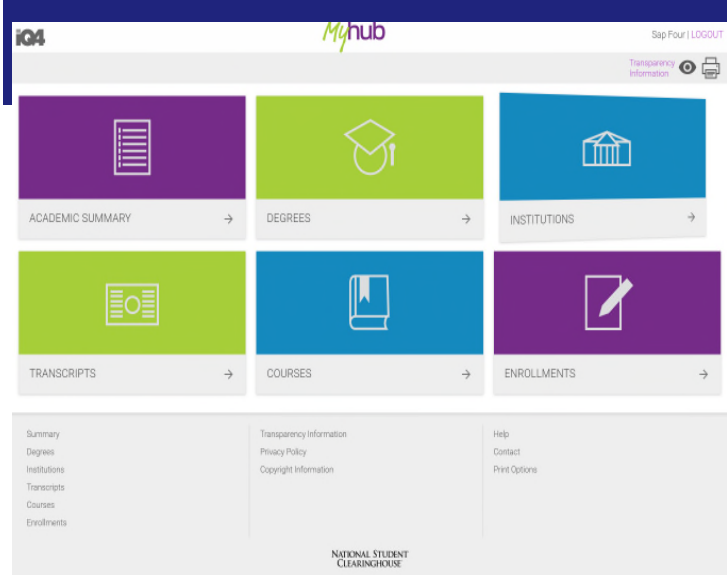
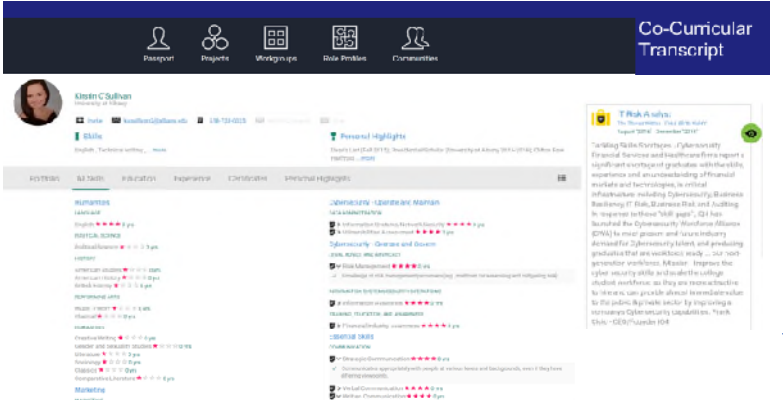
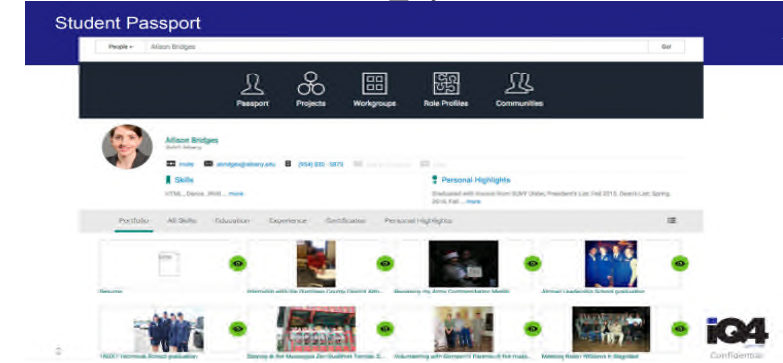
Extending the Capacity of Higher Education to Scale The  
Output of Verified Workforce Ready Graduates



## Executive Summary – PESC Award Submission

- CWA – mentored scalable 3-credit virtual internships:
  - Acceleration, awareness, experience and workplace readiness
- Experiential, competency based model proven **solving real world problems** Solving real world problems
  - Transportable across sectors and faculty –
- Leveraging the NIST Frameworks and NICE taxonomy
  - Faculty thinks Performance – industry wants to see KSAs learning outcomes for Job Roles and Progression
- NSC MyHub & iQ4 integration – transportable verified academic and co-curricular experience, KSAs, Badges, Certificates, Progression,.....

## Standards and Verified Driven Value to All Stakeholders



- ## Academic Career
- For Transfers
  - For Employers
  - For Anything



# The lack of cyber skills is a critical issue for employers

*Currently Cisco estimates **1mm unfilled security job world wide***

- Cyber security skills shortage a critical issue for the public and private sector
- “Most organizations do not have the people or the systems to monitor their networks consistently or determine how they are being infiltrated” <sup>(1)</sup>
- The regulatory landscape and nature of attacks change rapidly
- The projected dramatic increase in IoT and continued increase of sophisticated state-sponsored cyber will further increase vulnerability



Source: ISACA

Sources:

(1) Mitigating the Cybersecurity Shortage - Cisco



Cybersecurity Workforce Alliance

Leadership Coalition in Cyber Workforce Development



## Founding Members

- Federal Reserve Bank NY
- Morgan Stanley
- Goldman Sachs
- Bank NY Mellon
- Fidelity Investments
- Deloitte & Touche LLP
- Capgemini
- JPMorgan Chase
- Express Scripts
- Citizens Bank
- US Bank
- FS Roundtable
- Fidelity
- Bank of America
- American Express
- Standard Chartered Bank
- Dilworth Paxson LLP
- RANE Network



Cybersecurity Workforce Alliance

## Mission

*Improve the cybersecurity skills and scale the college/university student workforce so they are more attractive to hire and can provide almost immediate value to the public and private sectors by improving a organization's Cybersecurity resilience and capabilities.*

## Outcomes

**Align and enhance applied-learning curricula to develop skills in cybersecurity and information risk**

**Reduce the amount of training for college hires**

**Increase Awareness and Experience**

**Align Professional Certificates to Role Profiles**

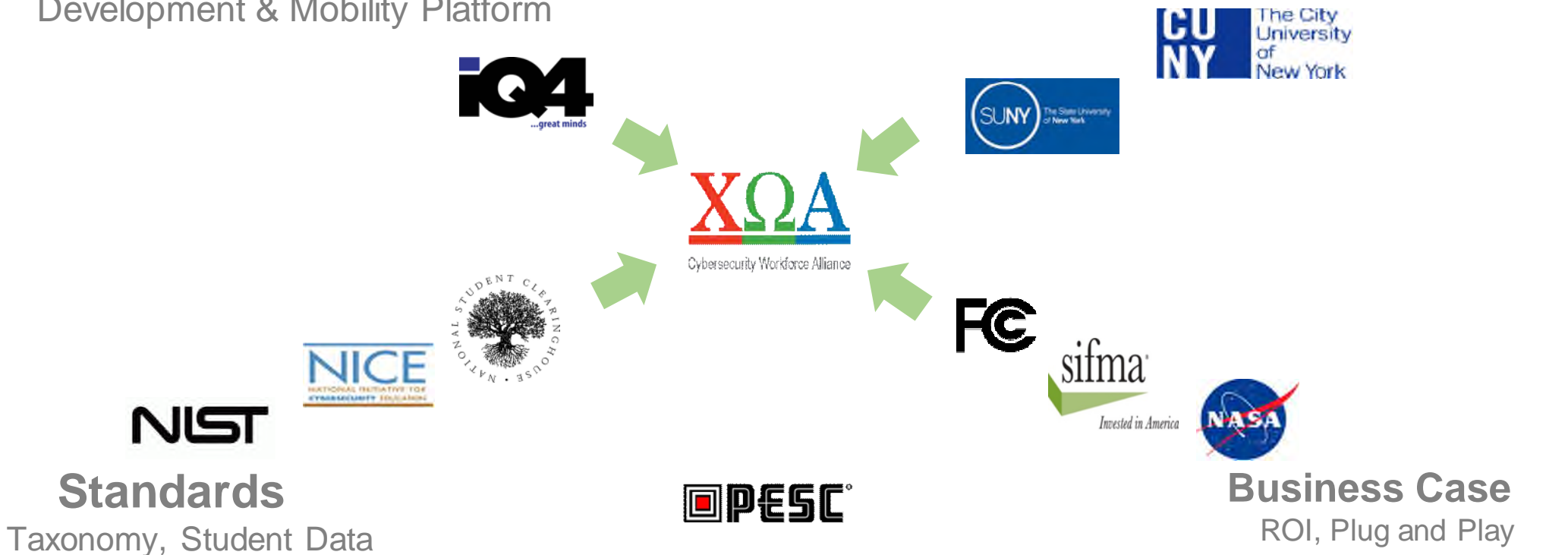
# 4 Cornerstones and Governance

## Technology

Development & Mobility Platform

## Engagement & Scale

Extending the Workplace into the classroom



**IQ4 AND NATIONAL STUDENT CLEARINGHOUSE  
AWARDED 1<sup>ST</sup> PLACE IN 18<sup>TH</sup> BEST PRACTICES COMPETITION**

**EXTENDING THE CAPACITY OF HIGHER EDUCATION TO SCALE THE OUTPUT OF VERIFIED WORKFORCE-READY GRADUATES**

Collaboration on Standards  
Mapping Education's Supply to Industry's Needs

## CWA Workforce Workgroup Map

**1,235** Cyber taxonomy definitions

**514** common across all Digital/IT

**44** Cyber/Gov'ce/Risk/Compl' roles

**20** Common KSA's to all roles and  
"knowledge Units" for academic  
learning outcomes

> **56%** KSA's in roles found in  
Professional Certificates



Financial Services Sector Coordinating Council  
An Critical Infrastructure Protection and Financial Security



1. Job Role	Specialty Job Family	Competency	Knowledge Skill
240 Cybersecurity: Investigator	Digital Forensics	Computer Languages	Skill in understanding OSF algorithms and implications of usage
241 Cybersecurity: Investigator	Digital Forensics	Computer Languages	Skill with OSF (Open Source Software), must have extensive experience in working with OSF license management tools such as Black Duck software
242 Cybersecurity: Investigator	Digital Forensics	Computer Network Defense	Skill in using binary analysis tools (e.g., Hexedit, command code and, hexdump)
243 Cybersecurity: Investigator	Digital Forensics	Computer Network Defense	Knowledge of virtual machine system malware, debugger aware malware, and packing
244 Cybersecurity: Investigator	Digital Forensics	Computer Network Defense	Skill in analyzing anomalous code as malicious or benign
245 Cybersecurity: Investigator	Digital Forensics	Computer Network Defense	Skill in interpreting volatile data
246 Cybersecurity: Investigator	Digital Forensics	Computer Network Defense	Skill in interpreting results of debugger to ascertain tactics, techniques, and procedures (TTP)
247 Cybersecurity: Investigator	Digital Forensics	Computer Network Defense	Knowledge of computer networking concepts and protocols, and network security methodologies
248 Cybersecurity: Investigator	Digital Forensics	Computer Network Defense	Knowledge of the system (implementations) (e.g., New Technology File System (NTFS), File Allocation Table (FAT), File Extension (EXT))
249 Cybersecurity: Investigator	Digital Forensics	Computer Network Defense	Knowledge of types of digital forensics data and how to investigate them
250 Cybersecurity: Investigator	Digital Forensics	Computer Network Defense	Knowledge of online banking and performed user regulations
251 Cybersecurity: Investigator	Digital Forensics	Computer Network Defense	Knowledge of processes for collecting, packaging, transporting, and storing electronic evidence to avoid alteration, loss, physical damage, or destruction of data
252 Cybersecurity: Investigator	Digital Forensics	Criminal Law	Criminal Law
253 Cybersecurity: Investigator	Digital Forensics	Criminal Law	Criminal Law
254 Cybersecurity: Investigator	Digital Forensics	Criminal Law	Criminal Law
255 Cybersecurity: Investigator	Digital Forensics	Criminal Law	Criminal Law
256 Cybersecurity: Investigator	Digital Forensics	Criminal Law	Criminal Law
257 Cybersecurity: Investigator	Digital Forensics	Criminal Law	Criminal Law
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267 Cybersecurity: Investigator	Digital Forensics	Criminal Law	Criminal Law
268 Cybersecurity: Investigator	Digital Forensics	Criminal Law	Criminal Law
269 Cybersecurity: Investigator	Digital Forensics	Criminal Law	Criminal Law
270 Cybersecurity: Investigator	Digital Forensics	Criminal Law	Criminal Law

## Cross Sector Taxonomy – Transportable Role Definitions, Specialty, Competency, Knowledge, Skill, & Abilities

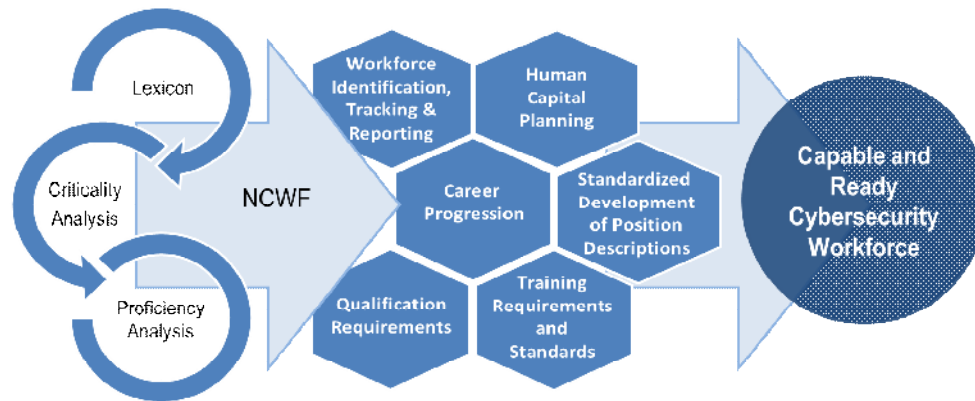
Education can design courses for  
Learning Outcomes (Knowledge  
Units) that industry wants

Professional Certificates  
Mapped to learning and roles

**Digitally Badged / Validated Skills & Experience Passport**



## Standards Based Real World Epic—Challenges



Taxonomy Link - for Roles, KSAs & Learning Outcomes





# Scaling the Integration of Academic and Applied Learning



Project home

Discussions

Project plan

Lessons

Assignments

Resources

Members

Add to Passport

Workgroups

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unread

Recent Activity

smash

Apr 30, 2017

9:21 PM

Where do you see yourself in 5 Years ?

In five years I aspire to have completed law school and to be practicing law h

smash

Apr 30, 2017

Should Drones/UAS be allowed on UAlbany campus?

I agree that drones, if allowed on campus, should be strictly used for educati

Founders  
Hosts

Participating  
Schools

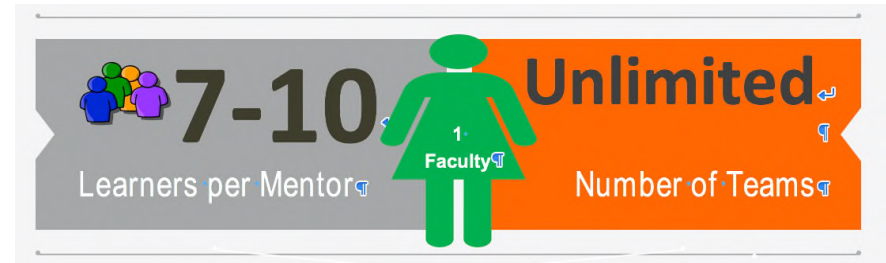


**CWA Mentors 1.5 hours per week for 12 weeks**

**Membership**

**Jan 2015 14**

**May 2017 > 550**



**Federal Reserve Banks (NY, Chicago, Boston), Goldman Sachs, Morgan Stanley, NASA, JPM Chase, American Express, Bank of America, Blackstone, Bay Networks, Capgemini\*, Citizens Bank, Deloitte, Express Scripts, Bank NY Mellon, Standard Chartered Bank, BNP Paribas, US Dept. Interior, Dilworth Paxson LLP, Dolus Counter Fraud, Coalfire, Red Owl, & Many More!**

## Scalability -Take The Workplace To The Classroom – Capacity and Expertise For Education

### Mentor – Active Calendar

The screenshot displays the 'Mentor – Active Calendar' interface. The top navigation bar includes a menu icon, the XQA logo, and a search icon. Below this is a dark blue bar with four icons: Passport, Projects (selected), Workgroups, and Role Profiles. The main content area shows a calendar for 'The Threat Within - CWA SUNY UAlbany'. A lesson titled 'LESSON 1 Introduction to the' is scheduled for Sunday, 9/5/2016, from 12:00 PM to 1:30 PM. A modal window titled 'Edit Live Session' is open, allowing users to edit the session details. The modal includes fields for Date (9/5/2016), From (12:00 PM), and To (1:30 PM). It also has a checkbox for 'Repeat same time each week' which is checked. Below this, there is a section titled 'Select three Subject Matter Experts including one lead \* ?'. This section contains two columns of experts: Lead and Expert. The Lead column lists Teresa Durocher, Robert Francis, Nicole Rossi, Miheer Khona, Karl Schimmeck, John Carr, and Frank Cicio. The Expert column lists Erick Rudiak, Alexander Stein, Dennis Paige, Doug Falk, Charles Camarda, Alan Mace, and David Robinson. The 'GO TO LESSON' button is visible in the background calendar view.

**Edit Live Session**

Date: 9/5/2016 From: 12:00 PM To: 1:30 PM

☒ Repeat same time each week

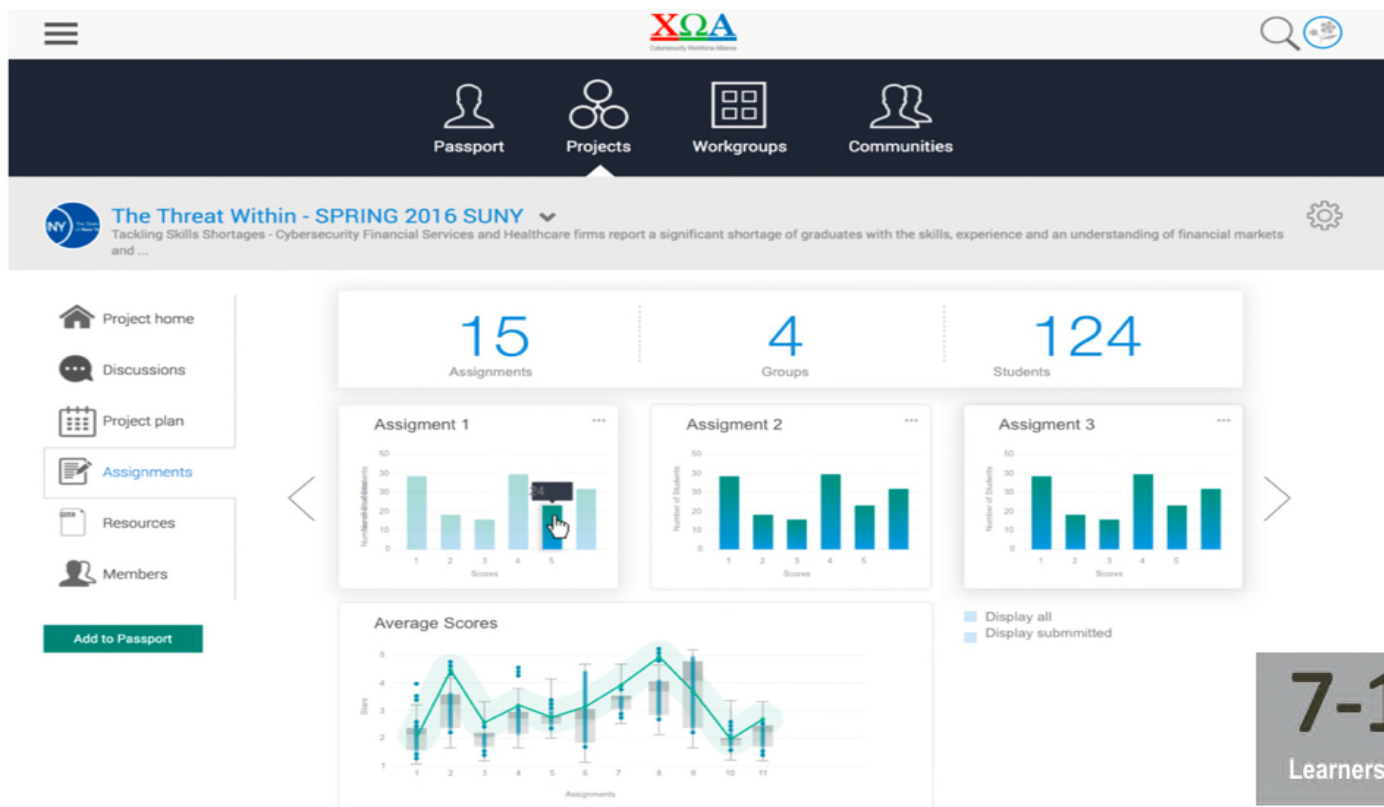
Select three Subject Matter Experts including one lead \* ?

Lead	Expert
<input type="checkbox"/> Teresa Durocher	<input checked="" type="checkbox"/> Erick Rudiak
<input checked="" type="checkbox"/> Robert Francis	<input type="checkbox"/> Alexander Stein
<input checked="" type="checkbox"/> Nicole Rossi	<input type="checkbox"/> Dennis Paige
<input type="checkbox"/> Miheer Khona	<input type="checkbox"/> Doug Falk
<input type="checkbox"/> Karl Schimmeck	<input type="checkbox"/> Charles Camarda
<input type="checkbox"/> John Carr	<input type="checkbox"/> Alan Mace
<input type="checkbox"/> Frank Cicio	<input type="checkbox"/> David Robinson

[GO TO LESSON →](#)

**iQ4**  
Confidential

# Mentors Assess Progression & Performance



iQ4

XQA

Cybersecurity Workforce Alliance

7-10  
Learners per Mentor



Unlimited  
Number of Teams

## Team & Roles-based Virtual-Menternships<sup>™</sup> = Experiential Learning Projects

### Web - Weekly Project Activity

#### Audience Overview

Jan 2, 2017 - Mar 4, 2017

Email Report Add to Dashboard Download

This report is based on 100% of sessions. [Learn more](#) [Consider restrictions](#)

All Users  
100.00% Sessions

+ Add Segment

#### Overview

Sessions vs. Select a metric

Hourly Day Week Month

Sessions

500

250

Jan 8 Jan 15 Jan 22 Jan 29 Feb 5 Feb 12 Feb 19 Feb 26

Sessions  
7,131

Users  
1,662

Pageviews  
70,867

Pages / Session  
9.94

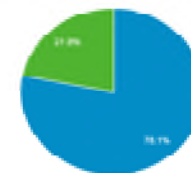
Avg. Session Duration  
03:09:12

Bounce Rate  
21.60%

% New Sessions

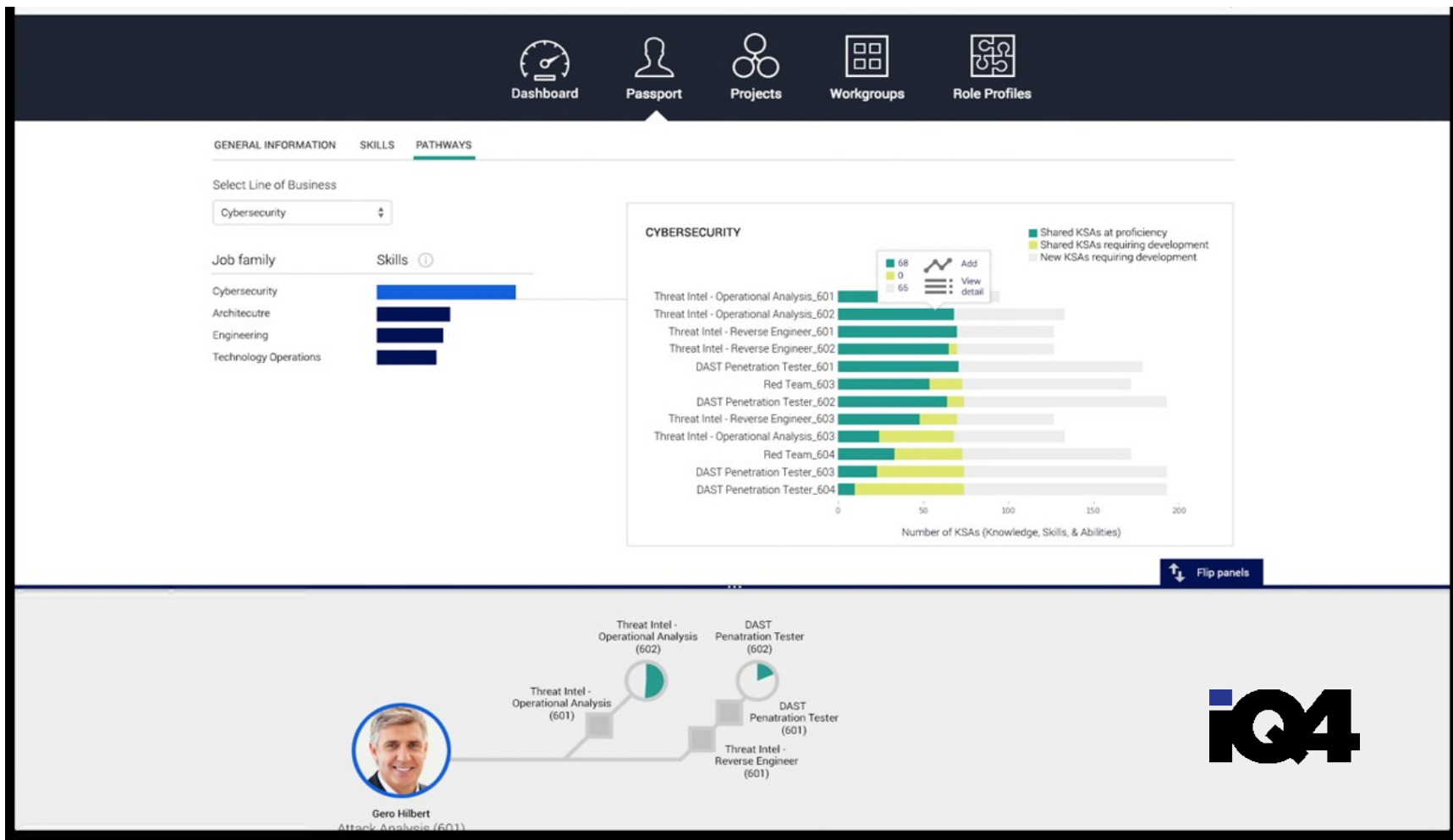
21.90%

Returning Visitor New Visitor

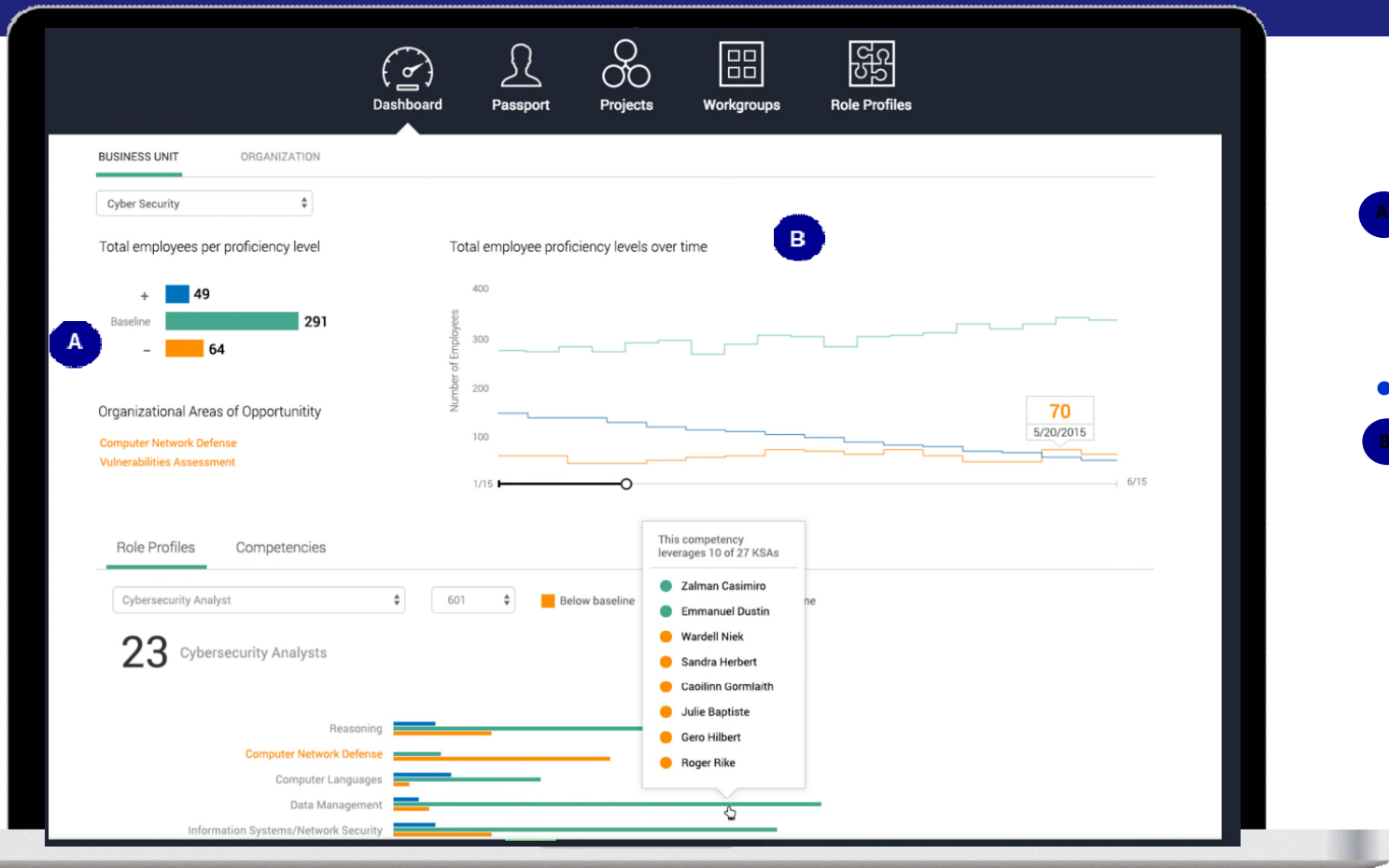




## Individual's Proficiency Profile by Line of Business and Job Family with Career Pathways Below



# Dashboard Analytics - Competency and Skills Analysis



- A** Baseline analysis and organizational areas of opportunities
- Measured
- B** performance and progression mapping



# AGENDA

## 1:00 - 2:20 PLENARY SESSION

Welcome to the Federal Reserve Bank of NY

Keynote Speakers:

### **RUTHE FARMER**

Senior Policy Advisor for Tech Inclusion  
White House Office of Science & Technology Policy

### **CHARLES CAMARDA, PH.D.**

Astronaut and Sr. Advisor for Innovation, Office of the Chief Engineer  
NASA

Student Presentations:

**SUNY | UNIVERSITY AT ALBANY**

**CUNY | JOHN JAY COLLEGE OF CRIMINAL JUSTICE**

## 2:20 - 2:30 BREAK

## 2:30 - 3:30 STRUCTURED NETWORKING

Hosted by **SCOTT MCMILLAN**

Chief People Officer & Head of Global HR Services  
CapGemini

## 3:30 - 4:00 CLOSING SESSION & CYBER 101 AWARDS

Hosted by **PHIL VENABLES**

Partner & Chief Information Risk / Security Officer  
Goldman Sachs

*"This is how you develop an industry-driven partnership with higher education". - (Employer)*

The Power of the Mentor Network? ..... "Priceless" (Student)

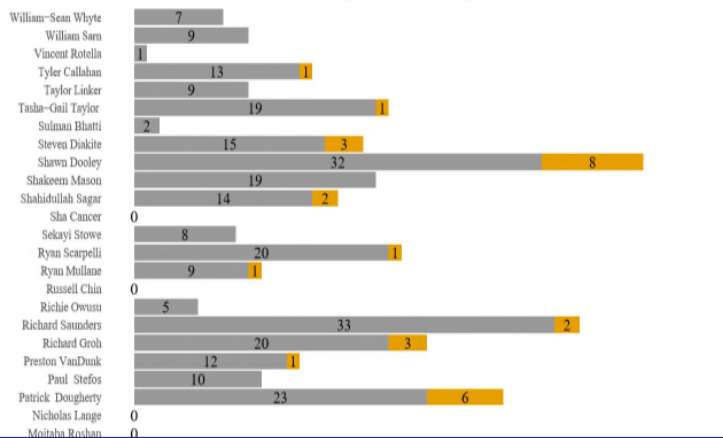
*I have been in college for 4 years and have never taken a class that helped with my understanding of the professional world the way this did. (Student)*

*In the labs you can fail and fix things easily by just pressing the delete button and starting all over again until you get it right. You just can't do the same with this course as it is an inter-personal team challenge. (Student)*

***This is where the rubber hits the road between education and the workplace (Educator)***

# Measuring Success Across The Board

SUNY Fall 2016 – Student Activity counts through Sat Dec 17 09:16:41 2016



- Over **400K** Hits On Site\*

- Students Have Received Internships/Full-Time Offers At:

**Deloitte.**

FBI

PwC

International Securities Exchange

HARVARD  
RESEARCH

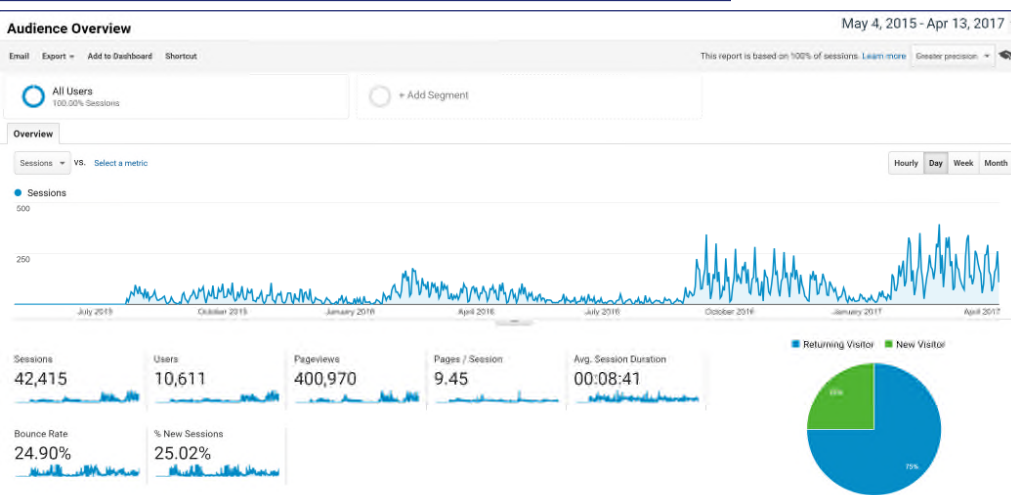
Bank NY Mellon



GAMING



Pharma Co



## WIN.....

### Students

Millennials engaged  
aware, inspired.

Knowledge and domain  
experience from “virtual  
Internship” to punch  
above the rest.

Jobs and careers.

## WIN.....

### Academia

Offer courses  
augmented by  
experience.

Scale the resource pool.

Attraction, retention  
and broader  
engagement with  
employers.

## WIN.....

### Industry

Cut the cost and time to  
hire and time to  
productivity while  
increasing retention.

Eliminate the war-for-  
talent.

Greater Assurance and  
Protection.

## WIN.....

### Government

Acceleration of  
competent cross sector  
workforce resource  
pool.

Metrics – inputs,  
outputs and jobs.

Cost to economy cut.  
Better protection.


Prosperity dividend  
from skills export.


# The 21<sup>st</sup> Century's Mobile Resume: Student Passports


People ▾


Allison Bridges


Go!


 Passport

 Projects

 Workgroups


 Role Profiles


 Communities





Allison Bridges


SUNY Albany

 Invite

 abridges@albany.edu

 (954) 830 - 5873

 Add to Contacts

 Chat

Skills

HTML , Dance , Writt ... [more](#)

Personal Highlights

Graduated with Honors from SUNY Ulster, President's List: Fall 2015. Dean's List: S 2014, Fall ... [more](#)


Portfolio


All Skills


Education


Experience


Certificates


 Highlights


 Resume


 Internship with the Dutchess County District Atto...


 Receiving my Army Commendation Medal

 Airman Leadership School graduation

 1N0X1 Technical School graduation

 Staying at the Musangsa Zen Buddhist Temple, S...

 Volunteering with Semper Fi Parents of the Huds...

 Meeting Robin Williams in Baghdad

Your passport is now available at:

[http://www.iq4.com/members/?user\\_id=2239](http://www.iq4.com/members/?user_id=2239)




OK



DEMO

MY Education,  
MY Information,  
MY Hub



LOGIN | CREATE ACCOUNT


Find Your Enrollment Information

Review Your Degree Information

Learn about Reverse Transfer Degrees

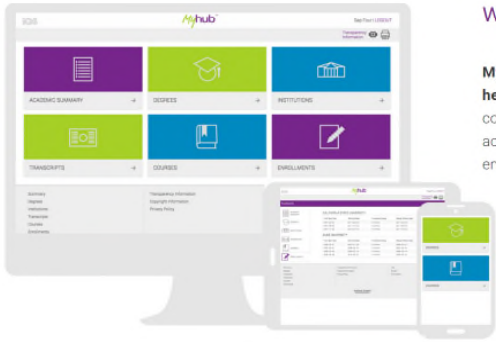
Understand Who Can See Your Academic Records





Data powering my education & career



CREATE YOUR ACCOUNT NOW



What is Myhub?

Myhub is your doorway to all your student-level academic records held by the National Student Clearinghouse®. You can see the content of your actual records as well as who has had authorized access to your records and why (e.g., graduate school application, employment screening).

CREATE YOUR ACCOUNT NOW



Sap Four | LOGOUT

Transparency Information

ACADEMIC SUMMARY



DEGREES

INSTITUTIONS

TRANSCRIPTS

COURSES

ENROLLMENTS



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Courses

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CERTIFICATES

COURSES

TRANSCRIPTS

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TRANSPARENCY INFORMATION

PRIVACY POLICY

CALIFORNIA STATE UNIVERSITY

Description	Name Number	Semester	Begin Date	End Date	Grade	Grade Effective Date	Number Of Credits	Course Exchange
Biology	BIO 433	Fall	2011-09-02		A	2011-11-25	3	Collins School
Chemistry	CHEM 432	Spring	2012-03-01		A	2012-06-05	3	Collins School

COURSES

Description	Name Number	Semester	Begin Date	End Date	Grade	Grade Effective Date	Number Of Credits	Course Exchange
Biology I For Science Majors	BIOL 1406	Spring	2006-03-06		A	2006-05-31	3	Lone Star College System District
Molecular Biology	MBIO 101B	Fall	2006-09-15		A	2006-11-30	3	Lone Star College System District
Beg Spanish I	SPAN 1411	Fall	2006-09-15		A	2006-11-30	3	Lone Star College System District

## Courses

ACADEMIC  
SUMMARY

DEGREES



INSTITUTIONS



CERTIFICATES



COURSES



TRANSCRIPTS



ENROLLMENTS

TRANSPARENCY  
INFORMATION

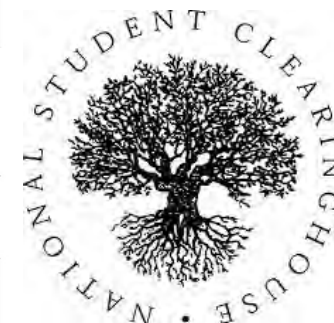
PRIVACY POLICY

## CALIFORNIA STATE UNIVERSITY

Description	Name Number	Semester	Begin Date End Date	Grade	Grade Effective Date	Number Of Credits	Course Exchange
'Biology'	BIO 433	Fall	2011-09-02	A	2011-11-25	3	Collins School
'Chemistry'	CHEM 432	Spring	2012-03-01	A	2012-06-05	3	Collins School

## DUKE UNIVERSITY

Description	Name Number	Semester	Begin Date End Date	Grade	Grade Effective Date	Number Of Credits	Course Exchange
Biology I For Science Majors	BIOL 1406	Spring	2006-03-06	A	2006-05-31	3	Lone Star College System District
Molecular Biology	MBIO 101B	Fall	2006-09-15	A	2006-11-30	3	Lone Star College System District
Beg Spanish I	SPAN 1411	Fall	2006-09-15	A	2006-11-30	3	Lone Star College System District





Any Questions?

[illegible]

iq4

Myhub

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Transparency Information

Academic Career

- For Transfers
- For Employers
- For Anything

ACADEMIC SUMMARY →

DEGREES →

INSTITUTIONS →

TRANSCRIPTS →

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Solve a Workforce Problem  
Get the young into work

**CWA@iQ4.com**

[peter@iQ4.com](mailto:peter@iQ4.com)

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[frank@iQ4.com](mailto:frank@iQ4.com) 201 914 4655