

CTEC

Chandler – Technical Education Center

INSTITUTE OF CYBER OPERATIONS AND NETWORKING

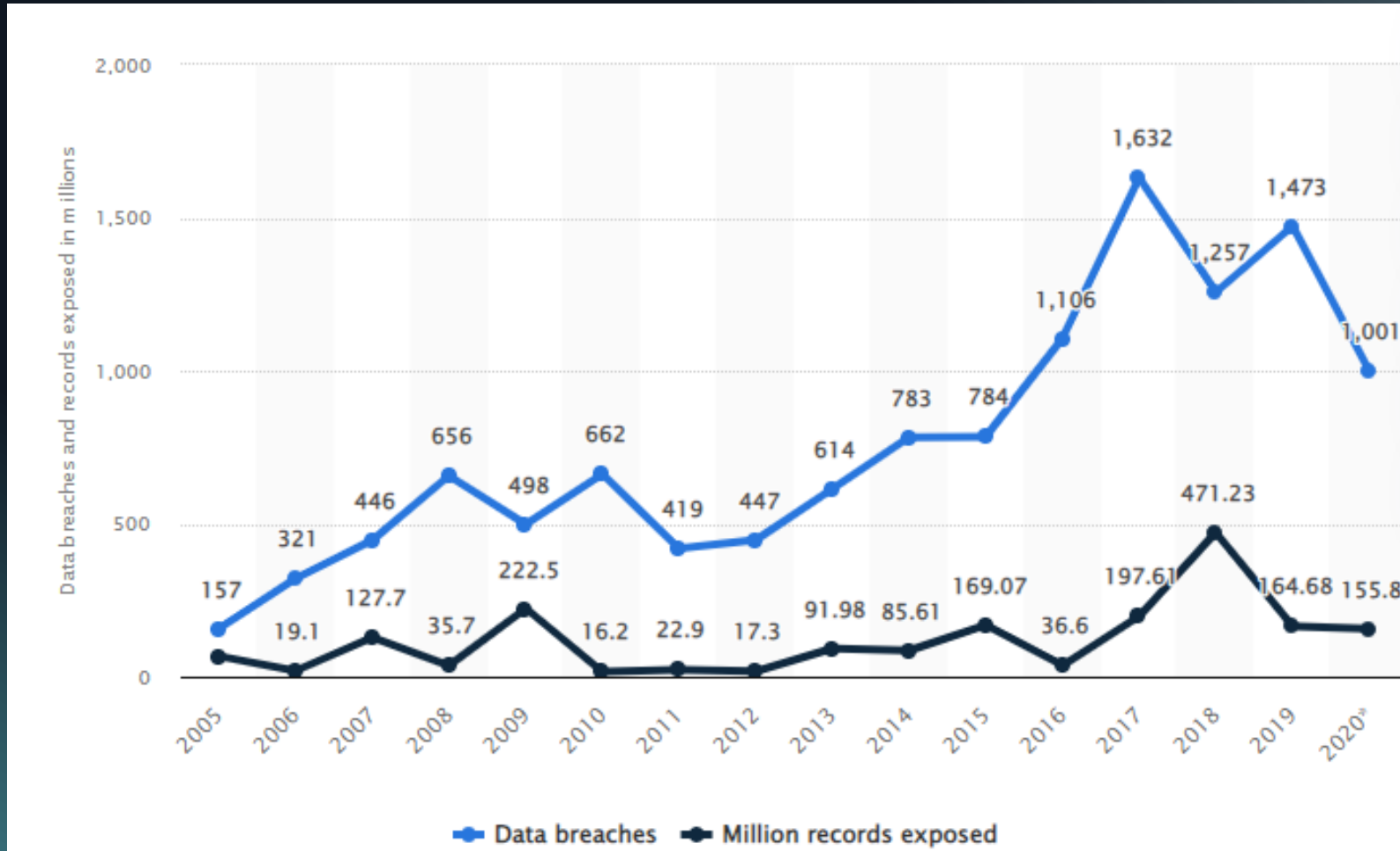
WHAT IS CYBER?

Cybersecurity is the art of protecting networks, devices, and data from unauthorized access or criminal use. The practice of ensuring confidentiality, integrity, and availability of information. (CISA)

<https://www.cisa.gov/uscert>



Number of U.S. data breaches 2015 – 2020 (millions)



THE NEW FRONTIER

INDUSTRY

Security is needed in *every* domain – if connects to the Internet or stores data it *must* be protected

“If you know cybersecurity, then you have a job for life” – Robert Herjavec



CAREERS FOR THE FUTURE

WHERE YOUR STUDENT FITS IN



15 April 2019

EMPLOYMENT S

CURRENT FACTS

- "Information Security Analysts" is the fastest growing occupation in the next decade – growth rate of 31% (compared to 4%) BLS ⁽⁷⁾
- *Requires* diversity (creating collaborative diverse thought) and diverse backgrounds – business, law enforcement, liberal arts, marketing design etc... ⁽⁸⁾



EMPLOYMENT OPTIONS

Security Job Openings

- “While highly technical roles are key, on average they make up *less than a third* of a healthy cybersecurity organization ⁽⁷⁾
- “3.5 million unfilled positions in the industry by 2021” (4) ~500,000 of those in the US
- Current unfilled cyber jobs:
 - US = 597,700
 - AZ = 16,800 (cyberseek.org)



CYBER MARKET OPPORTUNITY

The unemployment rate for cyber security is zero. ⁽³⁾

\$72,964 **Average Salary**

Entry cyber security positions are well paying, there is something for every level of education! ⁽⁶⁾



YOUR TEAM



CTEC



**Chandler-Gilbert
Community College**



UA - Chandler



**Advanced
Business Learning**

CURRICULUM

Your Students' CTEC Options



EDUCATION FLEXIBILITY

TAKING THESE COURSES AT THE HIGH SCHOOL LEVEL LETS YOUR STUDENT STAY AT THEIR HOME SCHOOL AND TAKE ADVANTAGE OF OTHER PROGRAMS OFFERED

1

Entry Point(s)

2

Other Programs

3

Special Options

EDUCATION FLEXIBILITY



Entry Point(s)

Students may enter the *cyber* program at any point while in high school. The entry point is CIS 105, BPC 170 and BPC 270. (CUSD course codes are: CYB 120, CYB 230A & B)

EDUCATION FLEXIBILITY



Other Programs

Students may still participate in athletics, drama, AFJROTC and other school clubs and organizations



EDUCATION FLEXIBILITY

1

2

3

Special Options

Students who participate will have further opportunities through our CTE program: career and leadership development, soft skills & clubs and competitions



EDUCATION OPTIONS

OUR PARTNERSHIPS WITH CHANDLER-GILBERT COMMUNITY COLLEGE AND THE UNIVERSITY OF ARIZONA PROVIDE YOUR STUDENTS WITH THESE TREMENDOUS OPPORTUNITIES

1

Completer Track

2

Technology Only

3

College Route



EDUCATION OPTIONS



1

2

3

Completer Track

Students on this path are taking **two** years of dual credit **technology** classes. At the end of the two years, students will be prepared to take four different industry recognized certifications.

EDUCATION OPTIONS



At this level, the students are taking dual credit **technology** courses all **four** years. At the end, they will be prepared to take six different industry recognized certifications.

EDUCATION OPTIONS



For students who are college-bound, they are taking dual credit **core** and **technology** classes. At the end of this option, students can be about one semester from their AAS degree from CGCC and then seamlessly move on to the University of Arizona - Chandler

EDUCATION OPTIONS



4

HIGH SCHOOL TO EMPLOYMENT

After completing high school, some students may elect to seek employment quickly. Advanced Business Learning (ABL) helps our students by prepping them for their industry exam and placement.

CERTIFICATION EXAMS

INDUSTRY LEVEL CERTIFICATIONS ALLOW YOUR STUDENT TO DEMONSTRATE THEIR ABILITIES TO POTENTIAL EMPLOYERS

1

Completer Track

2

Technology Only

3

College Route



CERTIFICATION EXAMS

1

2

3

Completer Track – 2 years

IT Fundamentals+
Network+

A+
Linux +



CERTIFICATION EXAMS



IT Fundamentals+
Security+
PCEP (Python Certified Entry-level Programmer)



Technology Only – 4 years

A+

Network+

Linux +



CERTIFICATION EXAMS

1

2

3

College Route

All prior listed certifications

Students can be within one semester from their AAS degree from CGCC with transferable credit to U of A



COST OF PROGRAM

Completer
Track

Total # of Classes: 7 Dual Enrollment - \$1,785
Year 1: \$ 765
Year 2: \$1,020

Four Year
Track

Total # of Classes: 11 Dual Enrollment - \$2,805
First two years: \$1,785
Year 3: \$ 510
Year 4: \$ 510

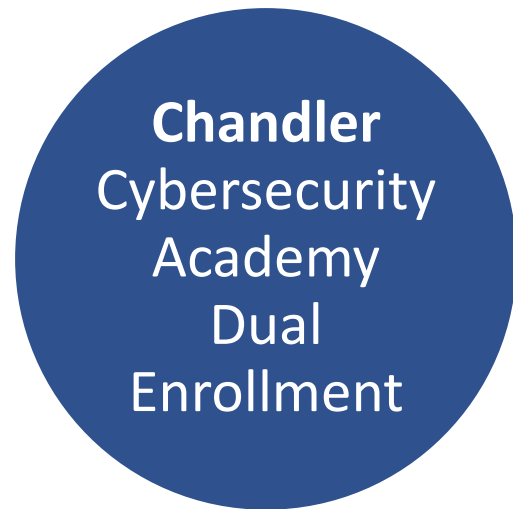




>>> Cyber Pathway



Seamless Cyber Pathway



Start 100 and 200 level classes



Associate's degree- finish 100 and 200 level classes



Bachelor's degree- Complete degree with 300 and 400 level classes



College of Applied Science & Technology

**The college within the University of Arizona that will award
your diploma and provide your cyber operations
instruction.**



CAST is the College of the Future

Innovative approach to 21st Century Education

- Accessible
- Affordable
- Attainable

CAST is *Future-Focused, Career-Ready*

- Science-Driven majors, minors, and certificates
- Employees in high demand
- Cyber Defense and Forensics pathway

CAST Cyber Operations Program

- Center of Academic Excellence – Cyber Operations (CAE-CO)
- Intelligence Community Center of Excellence (IC CAE)
- DoD Partnerships
- DoJ Partnerships
- Department of State University Champion
- Industrial & Commercial Partnerships



Cyber Defense and Forensics

What is Defense & Forensics?

- Cyber Defense & Forensics provides a holistic foundation across the spectrum of Cybersecurity.
- Options to focus on specific concentration within the field
- Gain in-depth expertise by adding on an undergraduate certificate or come back for future training and education.



BAS Cyber Operations Degree

BAS CORE COURSES

CYBV301 – Fundamentals of Cybersecurity
ENGV306 – Advanced Composition
BASV314 – Mathematics for Applied Sciences
CYBV326 – Network Analysis
CYBV329 – Cyber Law, Ethics & Policy
INFV320 – Computational Thinking & Doing

CYBER OPERATIONS SPECIFIC COURSES

CYBV385 - Introduction to Cyber Operations
CYBV388 – Cyber Investigations & Forensics
CYBV400 - Active Cyber Defense
CYBV435 - Cyber Threat Intelligence
CYBV436 – Counter Cyber Threat Intelligence
CYBV454 – Malware Threats & Analysis
CYBV473 – Violent Python

CYBER OPERATIONS SPECIFIC COURSES

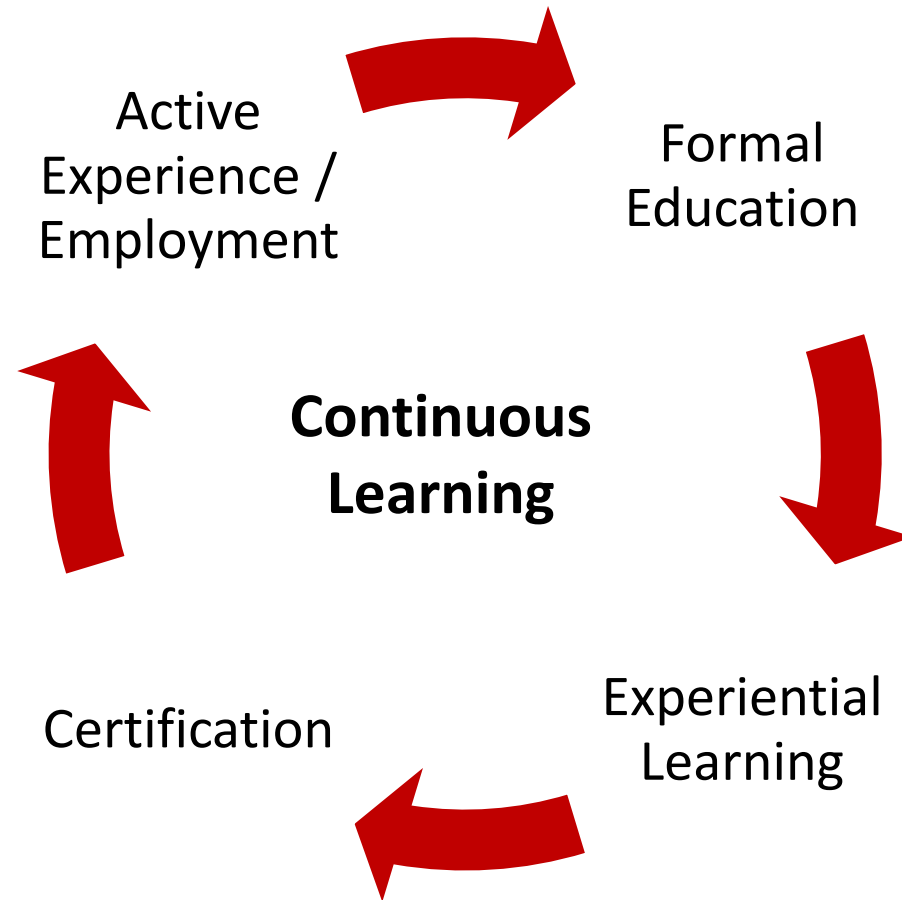
CYBV474 – Advanced Analytics for Security Professionals
NETV477 - Advanced Cyber Forensics
CYBV479 – Wireless Networking & Security
CYBV480 – Cyber Warfare
CYBV481 – Social Engineering Attacks
CYBV498 – Cyber Operations Senior Capstone

Defense & Forensics

Conforms to the NSA Centers of Academic Excellence in Cyber Operations/Defense (CAE-CO/CD) requirements
Exceeds Office of Personnel Management's (OPM) 2210 job series (Information Technology Manager) requirements



Hands-on Continuous Learning



Opportunities & Employment

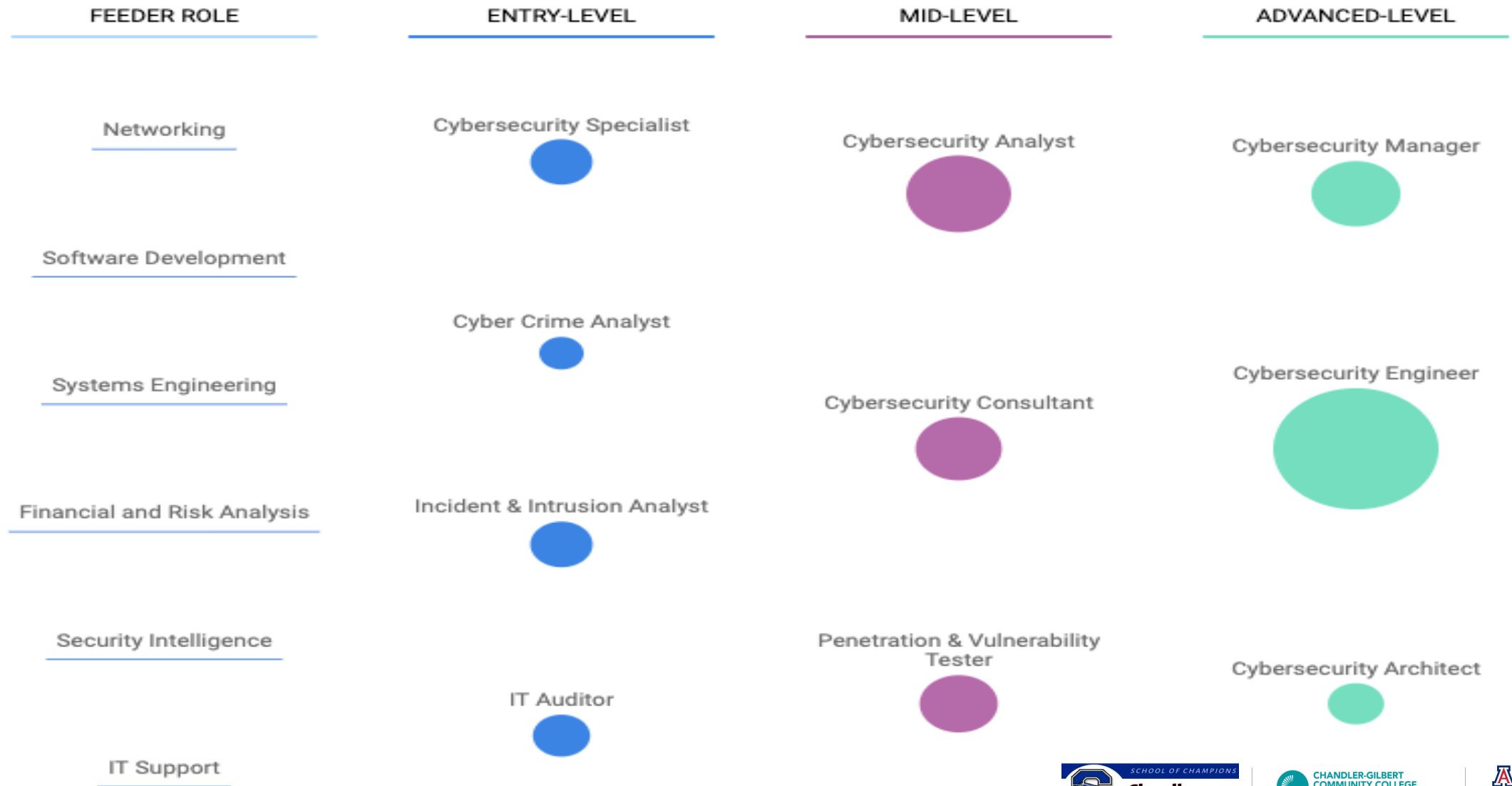
Opportunities

- Scholarships
- Internships
- Capstone
- Lab Spaces
- Cyber Saguaros
- Research –
Saguaro Pod

General Cybersecurity Roles

- Digital Forensics Expert
- Security Analyst
- Security Specialist
- Incident Response
- Penetration Tester
- Security Auditor
- Security Architect

cyberseek.org



cyberseek.org

Incident & Intrusion Analyst

AVERAGE SALARY ⓘ

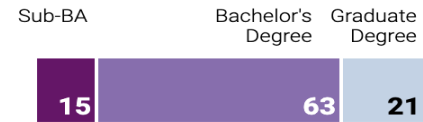
\$89,000



COMMON JOB TITLES ⓘ

- Senior Analyst, Information Security
- Disaster Recovery Specialist
- Network Technical Specialist
- Audit Project Manager - Information Security

REQUESTED EDUCATION (%) ⓘ



TOP SKILLS REQUESTED ⓘ

- 1 Information Security
- 2 Project Management
- 3 Information Systems
- 4 Linux
- 5 Network Security
- 6 Technical Support
- 7 Intrusion detection
- 8 UNIX
- 9 Security Operations

TOTAL JOB OPENINGS ⓘ

8,738



COMMON NICE CYBERSECURITY WORKFORCE FRAMEWORK CATEGORIES ⓘ

- Protect and Defend
- Analyze

TOP CERTIFICATIONS REQUESTED ⓘ

- GIAC Certified Incident Handler (GCIH)
- CompTIA Security+
- IT Infrastructure Library (ITIL) Certification

FUTURE SKILLS REQUESTED ⓘ

Skills	5-Year Projected Growth
Threat Hunting	104.55%
Security Information and Event Management (SIEM)	64.33%
Anomaly Detection	57.69%
Security Insider Threat Management	56.40%
Counter Intelligence	26.14%



Admissions

The College of Applied Science and Technology programs are designed for students transferring from a regionally accredited institution.

- Minimum 2.5 GPA
- Associate of Applied Science degree from accredited institution
- Specific course prerequisites as defined by each program



Admissions

- Connect with an Enrollment Counselor
- Submit your application
- Submit official transcripts



Financial Planning

TUITION COSTS

Find out your projected tuition & fees.

[Learn more](#)

FINANCIAL AID

Learn what types of aid are available, who is eligible, and how to apply along with important dates, deadlines, and updates.

[Learn more](#)

SCHOLARSHIPS

Scholarships are often called “gift aid” because they are free money— financial aid that does not have to be repaid.

[Learn more](#)

TRANSFER AWARD CALCULATOR

This Net Price Calculator is designed to help incoming, domestic transfer students estimate scholarship eligibility, costs, and other aid options at the University of Arizona.

[Learn more](#)

SCHOLARSHIP UNIVERSE

University of Arizona’s scholarship matching system is accessible to all current or officially admitted students.

[Learn more](#)

CYBER SCHOLARSHIP

The DoD is seeking rising third and fourth year undergraduate and graduate / doctoral students who are interested in fullride scholarships for studies in cybersecurity and other cyber-related disciplines.

[Learn more](#)

INTELLIGENCE & INFORMATION OPERATIONS STUDY ABROAD SCHOLARSHIP

[Learn more](#)

STUDENT SERVICES FEE

The Student Services Fee funds projects that enhance the student experience and positively impact student life.

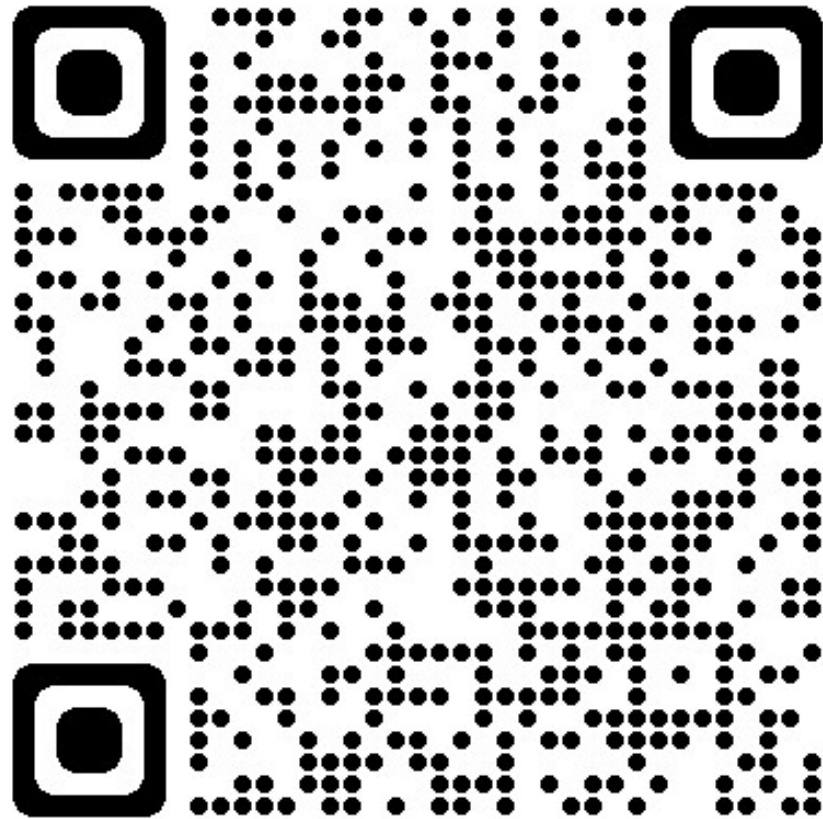
[Learn More](#)



Resources

- CAST website: <https://azcast.arizona.edu/>
- Cyber Operations: <https://cyber-operations.azcast.arizona.edu/>
- Admissions: <https://azcast.arizona.edu/student-services/admissions>
- Financial Planning: <https://azcast.arizona.edu/student-services/financial-planning>

QR Code for more information



REQUEST FOR INFORMATION

Contact us today to start planning your education. Submit the form below to have a University of Arizona representative contact you, or reach us by phone, email or in-person.

[Please click here to request information from our Arizona Online team](#) [Interested in a Graduate program? Click here](#)

First Name*

Last Name*

Email Address*

Phone*

You may send text messages to me at this number (Standard texting rates may apply).
 Yes

Current or Most Recent College Attended*

Semester You Plan To Start At UA*

Program of Interest*

SUBMIT

Opt. in to our texts to receive updates

Type "chandler high school"

Select Cyber Operations from the drop down bar

Following the pathway you could start as early as Fall 2024

CONTACT US!



Ernest Shand – CAST Academic Advisor

Contact for: Transfer questions and inquiries about our Cyber, IIO, and Applied Computing degrees

eshand@arizona.edu



Paul Wagner – CAST Department Head

Contact for: Questions and inquiries about our Cyber, IIO, and Applied Computing degrees, scholarships, and careers

paulewagner@arizona.edu

Advanced Business Learning



HOW TO GET INVOLVED

HERE IS A SHORT LIST OF WAYS YOU CAN JOIN US

- Advisory Board
- Guest Speakers
- Volunteers for CyberPatriot
- Tours at your place of employment
- Internship Opportunities
- Field Trip Chaperone
- Tax Credit



THANK YOU!

Chandler Unified School District
Basha High School
Chandler-Gilbert Community College
University of Arizona
Advanced Business Learning

RESOURCES

- (1) Annual Number of Data Breaches and Exposed Records in the US: Identity Theft Resource Center, Original Source: ITRC 2018 End-of-Year Data Breach Report, page 23, [website link](#), 2021 March 3
- (2) Slide 5 Photo [This Photo](#) by Unknown Author is licensed under [CC BY-NC-ND](#)
- (3) 2018-2019 stat: CSO form IDG, ESG Annual Survey, Jon Oltsik, ESG Senior Principal Analyst, January 10, 2019, 08:20 AM PT, [website link](#), 2019 April 8
- (4) Future stat: Forbes Technology Council, Brian NeSmith, CEO & Co-Founder of Arctic Wolf Networks, August 9, 2018, 07:30 AM, [website link](#), 8 April 2019
- (5) Current stat: Forbes, Jeff Kauflin, Forbes Staff, March 16, 2017, 06:46 PM, [website link](#), 8 April 2019
- (6) **Average** Entry-Level Info Security Analyst Salary, Payscale, 2022, [website link](#), 1 April 2022
- (7) Cybersecurity Jobs Report: 3.5 Million Openings Through 2025, November 11, 2021, Cybersecurity Ventures, Malcomb Farber, [website link](#)
- (8) Cybersecurity Jobs Report: 3.5 Million Openings Through 2025, November 11, 2021, Cybersecurity Ventures, Malcomb Farber, [website link](#) Quote from Joanna Burkey, CISO @ HP, Inc.
- (9) Slide 6 Photo [This Photo](#) by Unknown Author is licensed under [CC BY](#)





LINKS

Provided for Your Personal Research



[Link to 50 Cyber Jobs Title w/short descriptions](#)



[Link to National Cyber Employment Statistics](#)