Program Overview
The University of Mauritius and the University of Arizona have partnered to offer you an innovative dual degree program for you to earn two Bachelor of Applied Science (BAS) degrees in Cyber Operations with an emphasis in Defense and Forensics.

The Defense & Forensics Track is an interdisciplinary Cyber education program. The Defense & Forensics Track conforms to academic requirements from both the National Security Agency’s Centers of Academic Excellence in Cyber Operations (CAE-CO) and Cyber Defense (CAE-CD).

UA Cyber Operations Program Endorsements
The University of Arizona’s B.A.S. in Cyber Operations has earned a Silver Seal from the Servicemembers Opportunity Colleges (SOC) organization as part of their Cybersecurity Network. SOC is a US Department of Defense initiative designed to identify trusted, high-quality educational credentials that accommodate the specific needs of active duty Service members. Cybersecurity Credentials to earn the SOC Silver Seal are vetted for:

- Strong credential-level student outcomes in graduation, retention, and loan repayment compared to other institutions that have signed the US Department of Defense Memorandum of Understanding
- Extensive engagement with the cybersecurity industry regarding curriculum design and student recruitment for employment opportunities
- Opportunities for Student participation in internships, externships, and other experiential learning opportunities
• Demonstration that the credential's curriculum closes skill and knowledge gaps relevant to future employment
• NSA/DHS National Center of Academic Excellence in Cyber Defense Designated Credential, highly respected among industry/government

About the UA

The University of Arizona is a premier, public research university. The National Science Foundation ranks the UA 22nd in research and development expenditures among US public universities and colleges and 38th among US public and private universities.

U.S. News & World Report ranks the UA among America’s best colleges and the Princeton Review lists the UA as one of the nation’s best universities. The UA ranks No. 75 in the world and No. 45 nationally according to the Center for University World Rankings, and the UA is also one of the nation’s top producers of Fulbright Scholars.

Career Opportunities

The BAS in Cyber Operations prepares graduates for cyber-related occupations in defense, law enforcement, and private industry.

According to the U.S. Bureau of Labor Statistics, the rate of growth for jobs in information security is projected at 37% from 2012–2022—that’s much faster than the average for all other occupations.

Global shortage of 6 million cyber security professionals by 2019.

A message from University of Arizona President Robert C. Robbins

CYBER IS A CRITICAL COMPONENT OF THE 4TH INDUSTRIAL REVOLUTION

"We’re in the right place at the right time for preparing our students. We have a lot to offer the world. The impacts of the Fourth Industrial Revolution will be felt in all human endeavors and at all levels of our lives: the global economy, businesses, our society, nations and communities, and the individual."
Hands-On Learning

UA Cyber Operations courses are structured to maximize the ability to learn by doing. Cyber is a highly technical field that requires hands-on experience to master the material. UA Cyber courses maximize the opportunity for students to gain the hands-on experience they will need to be successful cyber professionals. Students not only have to learn the concepts and technologies, they must demonstrate they have mastered the course content through hands-on exercises and interactive assessments.

CyberApolis

UA has constructed and deployed an advanced virtual city called CyberApolis and it is inhabited by 15,000 highly-detailed personas.

Virtual Personas

Each of these personas have over 60 data points, including their full names, addresses, social security numbers, credit cards, logon credentials for social media, banking, retail, and medical accounts. Virtual persona activities, web browsing, emails, and social media postings are managed by human interaction to support specific learning objectives or through our advanced artificial intelligence algorithms that create tens of thousands of virtual persona interactions every day.

CyberApolis is an unstructured synthetic live environment designed to replicate the real internet.

It provides a realistic non-scripted training environment that forces the student to synthesize and apply what they have learned. CyberApolis also has a robust web presence to support Cyber-related learning activities. Each website has a full network presence with integrated vulnerabilities designed to support specific learning objectives. Moreover, each site has an organizational structure with assigned virtual personas. CyberApolis currently has a bank, hospital, large retailer, water company, power company, shipping company, two online media sites, a Facebook-like social media site, a Twitter-like social media site, four IRC chat servers, an underground hacker community, an organized crime element, and a growing number of small retailers. CyberApolis's population and infrastructure were specifically designed to support the scenarios necessary to verify and validate that our students have gained the knowledge, skills, and abilities required to be successful in the Cyber field.

https://www.youtube.com/watch?v=dcBHzLYPyHw
Cloud Computing

There is no need for high performance, expensive computer equipment. UA provides each student everything they will need through an advanced Cloud-based Virtual Learning Environment. Students only require a broadband Internet connection and either a Windows, Mac, or Linux computer to access their learning resources. High performance desktops, advanced Cyber tools, and the world class CyberApolis virtual city are all preconfigured and provided to each student so they can focus on learning.

UA Cyber Courses

Below are some of the UA course students in the dual degree program with the University of Mauritius will take:

**CYBV385 INTRODUCTION TO CYBER OPERATIONS**

CYBV 385 provides students an introduction to the concepts of Confidentiality, Integrity, and Availability (CIA) basics together with authentication and non-repudiation; vulnerabilities; security principles and testing; operating systems; and cryptography. CYBV 385 meets the National Security Agency (NSA) Center of Academic Excellence in Cyber Operations...[Read More.]

**CYBV388 CYBER INVESTIGATIONS AND FORENSICS**

CYBV 388 provides students with an understanding of intrusion detection methodologies, tools, and approaches to incident response; examination of computer forensic principles, including operating system concepts, registry structures, file system concepts, boot process, low level hardware calls, and file operations; and an exploration of the ethical...[Read More.]

**CYBV400 ACTIVE CYBER DEFENSE**

CYBV 400 will provide students with an introduction to the policies, techniques and operational capabilities and limitations of implementing an Active Cyber Defense program. A broad survey of development of defensible network architectures; integration of passive defensive technologies; consumption and production of Cyber Threat...[Read More.]

**CYBV435 CYBER THREAT INTELLIGENCE**

CYBV435 will provide students with an in-depth investigation of threat actors and the techniques they employ to attack networks. Students will research threat capabilities and objectives. Formal ethical hacking methodology including reconnaissance, scanning and enumeration, gaining access, escalation of privilege, maintaining...[Read More.]
CYBV454 MALWARE THREATS & ANALYSIS

CYBV/INFV 454 provides students a methodology to safely perform static and dynamic analysis of software of potentially unknown origin, including obfuscated malware, to fully understand the software’s functionality and specifications. Students will use hands-on labs and exercises to examine the fundamental principles of malware analysis and...Read More.

CYBV477 ADVANCED COMPUTER FORENSICS

NETV/CYBV 477 is an advanced computer forensics course that provides students an in depth knowledge of network forensics, network flow analysis, network intrusion detection systems, event reconstruction and memory forensics for Windows, Linux and MAC operating systems. Read More.

CYBV479 WIRELESS NETWORKING & SECURITY

CYBV479 provides students an introduction to wireless networking, mobile device hardware and software architectures as well as the application of security fundamentals for mobile computing systems. Students will be able to describe user associations and routing in a cellular/mobile network, interaction of elements within the...Read More.

CYBV480 CYBER WARFARE

CYBV 480 will provide students with an introduction to cyber warfare along with its policy, doctrine, and operational constraints. A broad survey of cyber tools, techniques and procedures will be presented, and students will use hands-on labs to practice and implement attack methodologies. CYBV 480 meets the National Security Agency (NSA) Center of...Read More.

CYBV498 CYBER OPERATIONS SENIOR CAPSTONE

CYBV 498 is designed to provide Cyber Operations majors with a capstone experience emphasizing integration of knowledge acquired in previous courses. The course provides a culminating experience for majors involving a substantive project that demonstrates a synthesis of learning accumulated in the major, including broadly...Read More.

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