

Information Technology, Business & Personal Services

GUIDED PATHWAY: Cyber Defense (Certificate, AAS Degree)

CYBERSECURITY INSTITUTE

For more information, visit <https://www.laredo.edu/cms/CTDSUM/> and your academic advisor.

This template provides information for students interested in pursuing a career in Cyber Defense. It does not represent a contract, nor does it guarantee course availability. Completing this pathway will earn students an Associate of Applied Science (AAS) degree in Cyber Defense ¹. For official degree requirements, [click here](#).

The Cyber Defense curriculum provides instruction in information security, scripting, ethical hacking, vulnerability assessment, risk management, threat modeling, and network defense. The Cybersecurity Institute is an EC-Council Academia Partner and a member of the AccessData Academic Program. These partnerships allow the Cybersecurity Institute programs the privilege of embedding AccessData and EC-Council certification topics with the curriculum. Students will demonstrate developed skill-sets through a capstone course and earn real world experience through hands-on exercises in cyber-range scenarios. Courses required to complete the Cyber Defense Associate of Applied Science Degree (D) and Certificate (C1) are noted below. *All Cybersecurity Institute courses require a grade of "C" or better.*



COLLEGE READINESS REQUIREMENTS (only for the AAS)

Enrolling in one or more courses may be necessary if assessment activities and previous academic experiences indicate a need for additional knowledge and skills:

READING & WRITING PLACEMENT	MATH PLACEMENT	ENGLISH LANGUAGE PROFICIENCY
TSI MET: YES NO IF NO, ADVISOR INSERT COURSE(S) NEEDED <input type="checkbox"/> INRW _____ <input type="checkbox"/> OTHER: _____	TSI MET: YES NO IF NO, ADVISOR INSERT COURSE(S) NEEDED <input type="checkbox"/> DEV MATH _____ <input type="checkbox"/> OTHER: _____	TSI MET: YES NO IF NO, ADVISOR INSERT COURSE(S) NEEDED <input type="checkbox"/> ESOL _____ <input type="checkbox"/> OTHER: _____

Exemptions/waivers may exist. Speak with an academic advisor regarding placement in college readiness courses and your ability to enroll in core academic coursework.

SEMESTER BY SEMESTER MAP FOR FULL-TIME STUDENTS ²

D	C1	SEMESTER 1	ACTION ITEMS
◆	◆	ITNW 1325 – Fundamentals of Networking Technologies	<input type="checkbox"/> Meet with your advisor to confirm academic and career goals before the end of the semester. <input type="checkbox"/> Meet with a career advisor or instructor to research your career options and opportunities for job shadowing.
◆	◆	ITNW 1413 – Computer Virtualization	
◆	◆	ITSC 1316 – Linux Installation and Configuration	
◆	◆	ITSE 1346 – Database Theory and Design	
◆	◆	ITSC 1342 – Shell Programming	

TOTAL SEMESTER CREDIT HOURS: 16

D	C1	SEMESTER 2	ACTION ITEMS
◆	◆	ITSY 1442 – Information Technology Security	<input type="checkbox"/> Meet with your advisor to file and official degree plan, confirm or update your academic/career path and program of study. Apply for the 1-Year Certificate II (L2) Completion
◆	◆	ITSY 2301 – Firewalls and Network Security	
◆	◆	ITSY 2317 – Wireless Security Development	
◆	◆	ITSY 2341 – Security Management Practices	

TOTAL SEMESTER CREDIT HOURS: 13

D	C1	SEMESTER 3	ACTION ITEMS
◆		ITSY 2430 – Intrusion Detection	<input type="checkbox"/> Meet with a career advisor or coach for assistance in preparing for job search.
◆		ITSY 2442 – Incident Response & Handling	
◆		ITSY 2445 – Network Defense and Counter Measures	
◆		ITSY 2459 – Security Assessment and Auditing (Capstone)	

TOTAL SEMESTER CREDIT HOURS: 16

D	C1	SEMESTER 4	ACTION ITEMS
◆		ENGL 1301 – Composition I (C)	After reviewing your degree plan and program of study apply for graduation. <input type="checkbox"/> Meet with your advisor to apply for the AAS. Sign up for commencement
◆		MATH 1324 – Mathematics for Business & Social Sciences I (C)	
◆		ELECTIVE – American History / Government / Political Science and Behavioral Science (C)	
◆		ELECTIVE – Language, Philosophy and Culture / Creative Arts (C)	
◆		ELECTIVE – Life and Physical Sciences (C)	

TOTAL SEMESTER CREDIT HOURS: 15

AAS DEGREE MINIMUM: 60 SEMESTER CREDIT HOURS/PATHWAY TOTAL: 60 SEMESTER CREDIT HOURS

1. Degree plans may change in later catalogs. Be sure to consult with your advisor if following an older degree plan.
 2. Students must earn at least 25% of the program credit hours (15 hours) through instruction by Laredo College.
 3. CAPSTONE Course: The learning experience in this course involves consolidation of all program skillsets to reinforce program curricula.
- (C) This course is included in the LC Core, if core complete, credits transfer to any public college or university in Texas.

Certification and Licensure Information

Python Institute Certified Entry-Level Python Programmer Certification
 CompTIA Security+ Certification
 EC-Council Certified Ethical Hacker Certification

Career Information

Common Job Titles

Security Architect, Information Security Analysts, Cyber Security Operations Center Analysts,

Regional Labor Market Information

A Cyber Security Operations Center Analyst is responsible for monitoring the network security within an organization or with a client. Analysts need to have the desire and ability to learn new skills. Professionals must be ready to work in a 24x7 environment to monitor the networks for security issues. They need to be thoroughly aware of information security principles and best practices. Analysts use log analysis toolsets to monitor the network for glitches, perform scanning to identify vulnerabilities, undertake threat intelligence, and respond to security incidents. They use Security Incident and Event Management (SIEM) toolsets to check for any cyber-crimes. Cyber Security Operations Center Analysts need to have an associate degree in computer science, information technology or related discipline or equivalent work experience. They should have basic knowledge of commonly used operating systems, such as Windows, Linux or macOS. Associates should be well-versed with common networking services and protocols. They should have experience in using anti-virus software, spyware, malware, adware, etc. properly. As per PayScale, the average annual wage of a security operations center analyst is \$62,400 per year in the United States. Freelance cybersecurity specialists can earn \$25 per hour.

Source: <https://www.fieldengineer.com/skills/cyber-security-operations-center-analyst>

Career and labor market research tools

(see Quick Reference Guide Bureau of Labor Statistics: <http://www.bls.gov/ooh/>, O*NET: <https://www.onetonline.org/>)

Career Resources: Students are encouraged to consult with their area of study advisor for additional career assistance. The above information is provided as a guide and reference tool for occupations related to this program. This is not a guarantee of job placement in any of these occupations after successful completion of an LC program. The common job titles listed are representative titles and are provided for career research. These are not the only occupations possible in this area of study.

Transfer Information

The Associate of Applied Science prepares students to directly enter the workforce; however, a Bachelor of Applied Arts and Sciences (BAAS) or Bachelor of Technology (BAT) degree can further a student's knowledge and probability for employment success. Baccalaureate degrees must meet general education requirements and completion of upper level courses.

Transfer Guides: The universities listed here do not constitute a Laredo College endorsement. Transfer course evaluations and determination of which courses will count toward a Bachelor's degree are made by the receiving transfer institution.

Texas A&M University @San Antonio: <https://www.tamusa.edu/>

South Texas College: <https://www.southtexascollege.edu/>

Western Governors University: <https://partners.wgu.edu/Pages/Transfer.aspx?iid=340>

Additional Transfer Resources: Students are encouraged to consult with a faculty advisor, area of study advisor, and/or their chosen transfer institution to ensure courses taken at LC will apply toward their bachelor's degree program.