



# Community: Information Technology

## BAS: Secure Software Development

### Bachelors of Applied Science Map 2024-2025

Required Courses	Titles	Credit
<b>General Education Required Courses:</b>		<b>Credits</b>
ENG 1021	English Composition I	3
MAT 1340	College Algebra (or higher)	4
Social & Behavioral Science GT Course (ANT, CRJ, ECO, GEO, HIS, PSC, PSY, SOC)		3
Arts & Humanities GT course (ART, FR, HUM, JPN, LIT, MUS, PHI, SPA)		3
Natural & Physical Science GT course (AST, BIO, CHE, GHE, ENV, GEY, PHY, SCI)		7
<b>English Choose 1 from the following</b>		
ENG 122 English Composition II		
Or		
ENG 131	Technical Writing	3
<b>Choose 1 from the following</b>		<b>3</b>
COM 1015	Public Speaking (3)	
COM 1025	Interpersonal Communication (3)	
<b>Sub Total General Education</b>		<b>26</b>
<b>Required Courses Lower Division</b>		
CIS 2020	Fundamentals of Unix	3
CIS 2040	Database Design and Development	3
CIS 2043	Introduction to SQL	3
CIS 2068	Systems Analysis and Design - <i>Last Semester Course</i>	3
CNG 1024	Networking I: Net+	3
CSC 1019	Introduction to Programming: Python	3
CSC 1029	Introduction to Secure Coding	3
CSC 1060	Computer Science I: (C++)	4
CSC 1061	Computer Science II: (C++)	4
CSC 2025	Computer Architecture	4
CSC 2045	Secure Software Coding	3
<b>Choose 1 of the following</b>		
CIS 1018		3
CIS 1055		
<b>Sub Total Lower Division Required</b>		<b>39</b>
		cont.



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<b>Choose 9 Credits from the following</b>		<b>9</b>
CNG 1031	Principles of Information Assurance (3)	
CSC 2017	Advanced Python (3)	
CSC 2040	Java Programming (3)	
CSC 2080	Internship (3)	
CIS 2089	Capstone (3)	
DAT 1001	Introduction to Data Science (3)	
Faculty Approved Elective (3)		
<b>Choose 1 of the following</b>		
CSC 2080	Internship (3)	
CIS 2089	Capstone (3)	<b>3</b>
<b>Sub Total Lower Division Elective</b>		<b>12</b>
<b>Required Courses Upper Division</b>		
CSC 3020	Software Engineering Fundamentals	4
CSC 3022	Security Fundamentals and Databases	4
CSC 3024	Secure Coding/Vulnerabilities I	4
CSC 3026	Secure Scripting of Operating Systems	3
CSC 3028	Security Libraries in Programming Languages	4
CSC 4022	Secure Software Engineering	4
CSC 4024	Secure Coding/Vulnerabilities II	4
CSC 4026	Secure Cloud Programming	4
CSC 4028	Software Security Testing	4
CSC 4080	Internship	4
<b>Sub Total Upper Division Required</b>		<b>39</b>
<b>Choose 4 Credits from the following</b>		<b>4</b>
CSC 3000	Advanced Computer Architecture (4)	
CNG 3010	Fundamentals of Cyber Security (4)	
CNG 3020	Cyberlaw Ethics and Policy (4)	
CNG 3030	Methods of Network Analysis (4)	
CNG 3036	Business Continuity and Disaster Recovery (4)	
CNG 3040	Cyber Operations (4)	
CNG 3050	Cyber Investigations and Forensics (4)	
CNG 4054	Malware Threats and Analysis (4)	
Faculty Approved Elective (4)		
<b>Sub Total Upper Division Elective</b>		<b>4</b>
<b>TOTAL CREDITS</b>		<b>120</b>



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### First Semester:

Complete	Course Number	Title	Credits	Prerequisite
	CSC 1019	Introduction to Programming	3	Basic Computer Skill
	ENG 1031	Technical Writing	3	
	MAT 1340	College Algebra (or higher)	4	
	COM 1015, 1025 (select one)	Public Speaking Interpersonal Communication	3	

### Second Semester:

Complete	Course Number	Title	Credits	Prerequisite
	CSC 1060	Computer Science I: C++	4	CSC 1019 and MAT 1340
	CSC 1029	Intro to Secure Coding	3	Pre/Co CSC 1060
	CIS 2040	Database Design and Development	3	
	CIS 2043	Introduction to SQL	3	
Gen Ed 1000 or 2000 level with lab (select ne)		Natural & Physical Sciences GT courses (AST, BIO, CHE, ENV, GEY, PHY, SCI)	3	Gen Ed 100 or 200 level with lab (select one)

### Third Semester:

Complete	Course Number	Title	Credits	Prerequisite
	CIS 2020	Fundamentals of Unix	3	
	Elective (select one)	CIS 2089 CNG 1031 CSC 2017, 2040, 2080, 2089 DAT 1001	3	
	CSC 1061 CSC 2025 (select one)	Computer Science II: C++ Computer Architecture	4	CSC 1060 CSC 1061
	CSC 2045	Secure Software Development	3	CSC 1029
	Gen Ed 1000 or 2000 level with lab (select one)	Natural & Physical Sciences GT courses (AST, BIO 105, CHE, ENV, GEY, PHY, SCI)	4	**** - 2 Science classes – one with a lab and one without – can be taken in two semesters



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### Fourth Semester:

Complete	Course Number	Title	Credits	Prerequisite
	CIS 2068	Systems Analysis and Design	3	
	CSC 1061 CSC 2025 (select the one not completed)	Computer Science II: C++ Computer Architecture	4	CSC 1060 CSC 1061

### Fifth Semester:

Complete	Course Number	Title	Credits	Prerequisite
	Elective (select one)	CIS 2089 CNG 1031 CSC 2017, 2040, 2080 DAT 1001	3	
	CSC 3020	Software Engineering Fundamentals –	4	CSC 2025, CIS 2068, & CSC 2045 Or permission of instructor
	CSC 3022	Security Fundamentals and Databases	4	CIS 2040, CIS 2043, & CSC 2045 Or permission of instructor
	Gen Ed 1000 or 2000 level (select one)	Arts & Humanities GT courses (ART, FRE, GER, HUM, ITA, JPN, LIT, MUS, PHI, RUS, SPA, THE)	3	

### Sixth Semester:

Complete	Course Number	Title	Credits	Prerequisite
	Elective (select one)	CIS 2089 CNG 1031 CSC 2017, 2040, 2080 DAT 1001	3	
	CSC 3024	Secure Coding/Vulnerabilities	4	CSC 2045 Or permission of Instructor
	CSC 3026	Secure Scripting of Operating Systems	3	CIS 2020 & CSC 2045 Or permission of Instructor
	CSC 3028	Security Libraries in Programming Languages	4	CSC 1061 or CSC 2040, CSC 2045 Or permission of Instructor



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**Seventh Semester:**

Complete	Course Number	Title	Credits	Prerequisite
	CSC 4022	Secure Software Engineering	4	CSC 3020 Or permission of instructor
	CSC 4024	Secure Coding/Vulnerabilities II	4	CSC 3024 Or permission of instructor
	Gen Ed 1000 or 2000 level (select one)	Arts & Humanities GT courses (ART 151, FRE, GER, HUM, ITA, JPN, LIT, MUS, PHI, RUS, SPA, THE)	3	
	Gen Ed 1000 or 2000 level (select one)	Social & Behavioral Sciences GT courses (ANT, ECO, GEO, HIS, POS, PSY, SOC)	3	

**Eighth Semester:**

Complete	Course Number	Title	Credits	Prerequisite
	CSC 4026	Secure Cloud Programming	4	CSC 3026 & CSC 3028 Or permission of instructor
	CSC 4028	Software Security Testing	4	CSC 3026 & CSC 3028 Or permission of instructor
	CSC 4080	Internship	4	Faculty Approval
	HIS 1000 or 2000 level (select one)	History GT-H1 course	3	



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