

# CYBERSECURITY, BACHELOR OF SCIENCE (BS) - CONCENTRATION IN SECURITY GOVERNANCE

## Program Learning Outcomes

- **Problem Solving and Critical Thinking**
  - Formulate project requirements and alternative solutions appropriate to the problem in a secure manner
  - Integrate design and implementation principles to develop effective software without introduction of vulnerabilities
  - Perform analyze software security and the efficiency of algorithms
  - Implement computing solutions that consist of system and application software written for modern computing platforms
  - Use appropriate tools and techniques for identifying malware and other vulnerabilities
- **Communication and Interpersonal Skills**
  - Document all aspects of secure software precisely and clearly
  - Use written, oral, and electronic communication to convey technical information effectively
  - Accurately communicate security analyses, policies, and methodologies
  - Work cooperatively in teams and with others
- **Ethical and Professional Responsibilities**
  - Determine the effects of security policy models in a global society
  - Recognize the important legal and policy issues in the development of secure systems
  - Demonstrate an awareness of the codes of professional ethics in the information technology industry
  - Plan for and ensure the security, privacy, and integrity of data
  - Recognize the need for continuing professional development

## Related Links

Cybersecurity - Security Governance, BS Program Page (<https://www.sru.edu/academics/majors-and-minors/cybersecurity/>)

Computer Science Department Page (<https://www.sru.edu/academics/colleges-and-departments/ches/departments/computer-science/>)

Professional Licensure/Certification Page (<https://www.sru.edu/students/student-consumer-information/professional-licensure/>)

## Curriculum Guide

### GPA Requirement

Major GPA: 2.0 or higher

Overall GPA: 2.0 or higher

### Summary\*

Code	Title	Hours
	Rock Studies Requirements	43
	Other Basic Requirements	0-3
	Computer Competency	0-3

Major Requirements	60
Electives	17

\* All undergraduate degree programs require a minimum of 120 credits. Some courses meet multiple requirements, but are only counted once toward the 120 credit total required to graduate.

## Rock Studies Requirements

Code	Title	Hours
<b>The Rock</b>		
SUBJ 139	University Seminar <sup>1</sup>	3
ENGL 102	Critical Writing	3
ENGL 104	Critical Reading	3
MATH 125	Precalculus	4
Select one of the following:		3
COMM 200	Civil Discourse: Theory & Practice	
PHIL 110	Ethics and Civil Discourse	
POLS 235	Civil Discourse and Democracy	
Subtotal		16
<b>Integrated Inquiry</b>		
<i>Creative and Aesthetic Inquiry</i>		
Select 3 Credits ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
<i>Humanities Inquiry</i>		
Select 3 Credits ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
<i>Social Science Inquiry</i>		
Select 3 Credits ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
<i>Natural Sciences Inquiry</i>		
SCI 101	Science of Life	3
<i>Physical Science Inquiry</i>		
SCI 102	Understanding the Physical World	3
Subtotal		15
<b>Thematic Thread</b>		
Select 12 Credits ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> ) <sup>2</sup>		12
<b>Total Hours</b>		<b>43</b>

<sup>1</sup> Course offered in multiple subjects; cannot take course in first major subject

<sup>2</sup> From at least 3 categories; no more than 6 credits from one department; 6 credits must be 300-level or above.

## Basic Math Requirement

Check with your adviser or a current degree audit report to see if you have been exempted from this course. The credit earned in this course will not be counted toward the 120 credit hour minimum needed to earn a degree.

Code	Title	Hours
Complete one of the following:		0-3
Meet required minimum SAT or ACT math score OR		
ESAP 110	Beginning Algebra	
<b>Total Hours</b>		<b>0-3</b>

## Computer Competency

Code	Title	Hours
Demonstrate "computer competency" by one of the following:		0-3
Pass Computer Competency Exam OR		
Select one of the following at SRU or another post-secondary institution:		
CPSC 100	Introduction to Computing for Liberal Arts	
CPSC 110	Computer Concepts	
CPSC 130	Introduction to Computing and Programming	
PE 202	Technology for Wellness	
<b>Total Hours</b>		<b>0-3</b>

## Major Requirements

- 30 major credits must be taken at SRU or PASSHE
- 30 major credits must be taken at the 300 level or above

Code	Title	Hours
<b>Required Courses</b>		
CPSC 130	Introduction to Computing and Programming <sup>1</sup>	3
CPSC 146	Programming Principles <sup>1</sup>	3
CPSC 207	Shell Commands and Scripting <sup>1</sup>	3
CPSC 300	Challenges of Computer Technology <sup>1</sup>	3
CPSC 301	Practical Computer Security	3
CPSC 311	Discrete Computational Structures <sup>1</sup>	3
CPSC 323	Fundamentals of Database Systems <sup>1</sup>	3
CPSC 327	Administration and Security <sup>1</sup>	3
CPSC 423	Computer Networks <sup>1</sup>	3
CYBR 101	Cybersecurity in the Era of Evolving Technology <sup>1</sup>	3
Subtotal		30
<b>Security Governance Required Courses</b>		
CPSC 102	Collaborative Information Technology and Society <sup>1</sup>	3
CPSC 237	Mobile App Development for Smart Devices <sup>1</sup>	3
CPSC 217 or CPSC 246	Advanced Web Programming <sup>1</sup> Advanced Programming Principles	3
CPSC 333	Introduction to Computer Forensics <sup>1</sup>	3
CSS 120	Introduction to Private Security	3
CSS 240	Security Management	3
MIS 401	Information Systems Security <sup>1</sup>	3
MIS 443	Project Management <sup>1</sup>	3
Subtotal		24
<b>Security Governance Electives</b>		
Select two of the following:		6
CSS 320	Security Risk and Emergency Management	
CSS 351	Fraud	
CSS 354	Risk Assessment and Fraud Prevention	
CPSC 450	Internship <sup>1</sup>	
Subtotal		6
<b>Total Hours</b>		<b>60</b>

<sup>1</sup> Course counts for 50% of Major requirements and Major GPA

\* Some courses may require pre-requisites. Please see course descriptions to determine if there are any pre-requisites for that specific course.

## Co-curricular and Experiential Learning

Students are encouraged to explore additional curricular and co-curricular opportunities. There is a strong correlation between long-term student success and participation in the following types of programs and activities:

1. High-Impact Practice (HIP) designated classes (Learning Community, Cap-Stone Course, Semester Projects)
2. Student-faculty research
3. Service Learning Courses
4. Internships
5. Volunteering (Summer Day Camps, Semester Workshops for K-12 students, Robot demos for visitors/local school districts)
6. Industry Awareness Night

## Important Curriculum Guide Notes

This Curriculum Guide is provided to help SRU students and prospective students better understand their intended major curriculum. Enrolled SRU students should note that the My Rock Audit may place already-earned and/or in progress courses in different, yet valid, curriculum categories. Enrolled SRU students should use the My Rock Audit Report and materials and information provided by their faculty advisers to ensure accurate progress towards degree completion. *The information on this guide is current as of the date listed. Students are responsible for curriculum requirements at the time of enrollment at the University.*

PASSHE - Pennsylvania State System of Higher Education Institutions

CYBERSECURITY (6421)

Concentration in Security Governance (SEGV)

This program is effective as of Fall 2019.

Revised 09.13.2021

UCC 2.5.2019

## Recommended Four-Year Plan

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
CPSC 130	Introduction to Computing and Programming	3
CYBR 101	Cybersecurity in the Era of Evolving Technology	3
ENGL 102	Critical Writing	3
MATH 120 or SCI 101	Intermediate Algebra or Science of Life	3
INDS 101	FIRST Seminar	1
SUBJ 139	University Seminar <sup>1</sup>	3
<b>Hours</b>		<b>16</b>
<b>Spring</b>		
CPSC 102	Collaborative Information Technology and Society	3
CPSC 146	Programming Principles	3
ENGL 104	Critical Reading	3

MATH 125	Precalculus	4
Select one of the following:		3
COMM 200	Civil Discourse: Theory & Practice	
PHIL 110	Ethics and Civil Discourse	
POLS 235	Civil Discourse and Democracy	

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**Hours** **16**

### Second Year

#### Fall

CPSC 207	Shell Commands and Scripting	3
CPSC 246 or CPSC 217	Advanced Programming Principles or Advanced Web Programming	3
Creative & Aesthetic Inquiry ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
SCI 101	Science of Life	3
Social Science Inquiry ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3

Declare a Thematic Thread<sup>2</sup>

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**Hours** **15**

#### Spring

CPSC 323	Fundamentals of Database Systems	3
CPSC 301	Practical Computer Security	3
SCI 102	Understanding the Physical World	3
CSS 120	Introduction to Private Security	3
Humanities Inquiry ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3

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**Hours** **15**

### Third Year

#### Fall

CPSC 237	Mobile App Development for Smart Devices	3
CPSC 300	Challenges of Computer Technology	3
CSS 240	Security Management	3
Thematic Thread Requirement ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
Cyber Elective or Free Elective (p. 3)		3

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**Hours** **15**

#### Spring

CPSC 327	Administration and Security	3
CPSC 311	Discrete Computational Structures	3
CPSC 333	Introduction to Computer Forensics	3
Thematic Thread Requirement ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
Cyber Elective or Free Elective (p. 3)		3

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**Hours** **15**

### Fourth Year

#### Fall

CPSC 423	Computer Networks	3
Thematic Thread Requirement ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
Cyber Elective or Free Elective (p. 3)		3
Cyber Elective or Free Elective (p. 3)		3
Cyber Elective or Free Elective (p. 3)		3

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**Hours** **15**

### Spring

MIS 401	Information Systems Security	3
MIS 443	Project Management	3
Thematic Thread Requirement ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
Cyber Elective or Free Elective (p. 3)		3
Cyber Elective or Free Elective (p. 3)		3

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**Hours** **15**

**Total Hours\*\*** **122**

<sup>1</sup> Course offered in multiple subjects; cannot take course in first major subject

<sup>2</sup> Work with your Academic Adviser to declare a Thematic Thread by the end of your fall semester in your second year. Click here (<https://forms.office.com/Pages/ResponsePage.aspx?id=ul1VhjsH90-30bc6d8W9kIM7Wtmwv-VJnD6riXkdMh1UNEFHMUNH0Ei5TkJOWIRHVzRCMzI3UldNTi4u>) to declare a thread.

\* Students are encouraged to take INDS 101 as a Free Elective.

## Cyber Elective - CE Courses

Code	Title	Hours
CSS 320	Security Risk and Emergency Management	3
CSS 351	Fraud	3
CSS 354	Risk Assessment and Fraud Prevention	3
CPSC 450	Internship <sup>1</sup>	1-12

<sup>1</sup> Jr. or Sr. Computing major with 3.0 GPA. Application required

\*\* This document is meant to serve as a guide. Some planners may show more than 120 credits because faculty have created flexibility in choosing courses. However, only 120 credits are required to obtain a degree. Please consult with your academic adviser and refer to your curriculum guide prior to registering for courses. This plan should be reviewed, and verified, by you and your academic adviser at least once each academic year.

Major Code: 6421

Concentration Code: SEGV

Revised date: 09.13.2021