CYBERSECURITY

Department Website: Cybersecurity (https://www.gonzaga.edu/school-of-engineering-applied-science/degrees-and-programs/computer-science/bs-cybersecurity/)

The B.S. in Cybersecurity (BSCY) is a technical degree intended for students wanting to gain expertise in secure software engineering, networks/internet of things (IoT), cryptography, and digital forensics. The program trains students to protect computers and networks from hackers and other threats. Students learn skills such as software engineering to develop secure code and security features for apps, encryption to secure communication systems, and forensics tools to uncover evidence of cybercrime. All Cybersecurity students participate in a large software engineering project during their senior year. Each project is completed under the guidance of a faculty advisor and a project sponsor. Advisors are frequently practicing software engineers and security professionals. Project sponsors are often from the tech/security industry.

Cybersecurity (BS) Major

Program Requirements

Code	Title	Hours
Lower Division		
CPSC 121	Computer Science I	3
CPSC 122	Computer Science II	3
CPSC 223	Algorithm and Abstract Data Structures	3
CPSC 224	Software Development	3
CPSC 260	Computer Organization	3
Upper Division		
CPSC 321	Database Management Systems	3
CPSC 328	Computer Networks	3
CPSC 341	Internet of Things	3
CPSC 346	Operating Systems	3
CPSC 348	Computer Security	3
CPSC 353	Applied Cryptography	3
CPSC 391	Software Engineering and Ethics	3
CPSC 439	Digital Forensics	3
CPSC 448	Network and System Security	3
CPSC 450	Design and Analysis of Computer Algorithms	3
CPSC 491	Software Engineering	2
CPSC 492	Senior Design Project II	3
CPSC 493	Secure Software Engineering	3
CPSC Technical Elective 2XX, 3XX, 4XX		6
Mathematics Requirements		
MATH 157	Calculus and Analytic Geometry I	4
MATH 231	Discrete Structures	3
MATH 258	Calculus and Analytic Geometry II	4
MATH 321	Statistics for Experimentalist	3
Math Electives		6
MATH 259	Calculus and Analytic Geometry III	
MATH 260	Ordinary Differential Equation	
ENSC 371	Advanced Engineering Math	
CPSC 455	Chaos and Dynamical Systems	
Any 300 or 400 level Mathematics course		
Science Requirements		4
BIOL 105 & 105L	Information Flow in Biological Systems and Information Flow in Biological Systems Lab	
BIOL 106	Energy Flow in Biological Systems	
BIOL 205 & 205L	Physiology and Biodiversity and Physiology and Biodiversity Lab	
BIOL 206 & 206L	Ecology and Ecology Lab	
BIOL 207 & 207L	Genetics and Genetics Lab	
CHEM 101 & 101L	General Chemistry I and General Chemistry I Lab	
CHEM 205	Inorganic Chemistry	
CHEM 230 & 230L	Organic Chemistry I and Organic Chemistry Lab I	
CHEM 231 & 231L	Organic Chemistry II and Organic Chemistry Lab II	
CHEM 245 & 245L	Biochemistry and Biochemistry Lab	
CHEM 310 & 310L	Analytical Chemistry and Analytical Chemistry Lab	
PHYS 121 & 121L	Physics I and Physics I Lab	
PHYS 122 & 122L	Physics II and Physics II Lab	
PHYS 222	Electronics	
PHYS 224	Modern Physics	
PHYS 325	Computational Physics	
Science and Mathematics Electives		6
Choose from: Math Electives or Science Requirements listed above.		

Cybersecurity Minor Program Requirements

Code	Title	Hours
CPSC 121	Computer Science I	3
CPSC 122	Computer Science II	3
CPSC 260	Computer Organization	3
CPSC 328	Computer Networks	3
CPSC 348	Computer Security	3
Select one of the following:		
CPSC 341	Internet of Things (Select one of the following:)	
CPSC 346	Operating Systems	
CPSC 353	Applied Cryptography	
CPSC 439	Digital Forensics	
CPSC 448	Network and System Security	
CPSC 493	Secure Software Engineering	
EENG 410	Information Theory and Coding	
Total Hours		**15**