CYBR-101 – Fundamentals of Cybersecurity

Technology

Effective Term & Year: Fall 2027
Course Outline Review Date: 2032-03-01

Program Area: Information Technology

Description:

This course introduces the fundamental concepts, principles, and practices of cybersecurity. Students explore cyber threats, vulnerabilities, attack methods, security controls, network security, access control, governance, and regulatory compliance. The course also introduces foundational Java programming concepts, including program structure, variables, control structures, methods, and basic object-oriented programming. Through hands-on activities and case studies, students develop the foundational knowledge and practical skills required for further study in cybersecurity.

Program Information:

This course is required for the first year of the Cybersecurity Operations program.

Delivery Methods: Hybrid – On-campus (Face-to-Face) and Online

Credit Type: College of the Rockies Credits

Credits: 4

Instructional Activity and Hours:

Activity	Hours
Classroom, Directed Studies or Online Instruction	40
Seminar/Tutorials	
Laboratory/Studio	40

Practicum/Field Experience	
Co-op/Work Experience	
Other	
Total	80

Course Requisites:

Prior Learning and Recognition: Yes

Students are able to request formal recognition of their prior learning or experience outside the classroom. Challenge examination, portfolio-assisted assessment, work-based assessment or a combination of assessments that is appropriate to identify, assess, and recognize prior skills, competencies, and knowledge to achieve course credit. Tuition fees apply, refer to Policy 2.5.5 Prior Learning Assessment and Recognition (PLAR) or contact an education advisor for more information.

Course Transfer Credit:

For information about receiving transfer credit for courses taken at either British Columbia or Alberta institutions, please see https://www.bctransferguide.ca/ or https://transferalberta.alberta.ca . For more transfer credit information, please visit https://www.cotr.bc.ca/Transfer

All requests for course transfer credit from institutions in British Columbia or elsewhere should go to the College of the Rockies Enrollment Service office.

Textbook Resources:

Textbook selection varies by instructor and may change from year to year. At the Course Outline Effective Date the following textbooks were in use:

Please see the instructor's syllabus or check COTR's online text calculator https://textbook.cotr.bc.ca/ for a complete list of the currently required textbooks.

Learning Outcomes:

Upon successful completion of this course, students will be able to:

- explain the evolution of cybersecurity, its foundational principles, and its critical role in

protecting information systems, networks, and digital assets;
- identify and analyze common cyber threats, vulnerabilities, attack vectors, and security controls used to reduce organizational risk;
- apply the principles of Authentication, Authorization, and Accounting (AAA), network security concepts, and common security protocols to support secure system and network operations;
- describe cybersecurity governance, security policies, regulatory compliance, and the ethical responsibilities of cybersecurity professionals;
- demonstrate foundational programming concepts using Java, including program structure, variables, data types, control structures, methods, and basic object-oriented concepts; and
- apply cybersecurity and introductory programming knowledge to analyze simple security scenarios, solve basic technical problems, and communicate appropriate security practices.

Course Topics:

- Cybersecurity Fundamentals and the Threat Landscape
- Core Security Principles (CIA Triad)
- Cyber Threats, Vulnerabilities, and Attack Vectors
- Identity, Authentication, Authorization, and Access Control
- Fundamentals of Network Security
- Security Protocols and Secure Communications
- Security Policies, Governance, and Regulatory Compliance
- Security Awareness, Ethics, and Professional Practice
- Incident Recognition and Basic Response
- Introduction to Java Programming
- Variables, Data Types, and Operators in Java
- Control Structures and Methods in Java
- Introduction to Classes and Objects in Java
- Cybersecurity Career Pathways and Professional Certifications

See instructor's syllabus for the detailed outline of weekly readings, activities and assignments.

Evaluation and Assessments

Assessment Type: On-Campus (face-to-face) and Online, or Hybrid

Assessment Type	% of Total Grade
Assignments (x2)	40%
Midterm	20%
Progress Milestone	10%
Final Exam	30%
Total	100%

Grade Scheme

A+	A	A-	B+	B	B-	C+	C	C-	D	F
>=90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	<50

Evaluation Notes: A grade of “D” grants credit, but may not be sufficient as a prerequisite for sequential courses.

Evaluation Notes Comments:

Please see the instructor’s syllabus for specific classroom policies related to this course, such as details of evaluation, penalties for late assignments and use of electronic aids.

Exam Attendance:

Students must attend all scheduled exams at the appointed time and place. Instructors may approve an alternate exam to accommodate an illness or personal crisis. Department heads will consider other written requests. Any student who misses a scheduled exam without prior approval will receive a “0” on the exam.

Academic Policies:

College of the Rockies policies related to courses can be found at https://cotr.bc.ca/about-us/college-policies/ and include the following:

- Policy 2.1.4 Course Audit
- Policy 2.4.1 Credential Framework
- Policy 2.4.3 Students with Documented Disabilities
- Policy 2.4.4 Student Rights, Responsibilities and Conduct
- Policy 2.4.8 Academic Performance
- Policy 2.4.9 Student Feedback and Concerns
- Policy 2.4.11 Storage of Academic Works
- Policy 2.5.3 Student Appeal
- Policy 2.5.5 Prior Learning Assessment and Recognition (PLAR)

Course Changes:

The College of the Rockies updates course outlines regularly to meet changing educational, employment and marketing needs. The instructor will notify students in writing of any updates to this outline during the semester. The instructor reserves the right to revise, add or delete material while meeting the learning outcomes of this course outline.