

# Syllabus

## Introduction to Cybersecurity

### Course Overview

This one-semester course is intended to introduce you to the concepts of cybersecurity. This course has 13 lessons and 5 Course Activities. Each lesson contains one or more Lesson Activities.

In Introduction to Cybersecurity, you will examine key cybersecurity concepts and programs. You will identify the different types of cybersecurity threats and errors. You will explain how to protect your computer system, networks, and data from various cyber attacks. You will describe the process of risk assessment, mitigation, and incident handling. You will examine various laws, standards, and ethical issues related to cybersecurity. Finally, you will explore the career opportunities in the field of cybersecurity.

Your teacher will grade your work on the Course Activities, and you will grade your work on the Lesson Activities by comparing them with the given sample responses. The Course Activities (submitted to the teacher) and the Lesson Activities (self-checked) are major components of this course. There are other assessment components, namely the mastery test questions that feature along with the lesson and an end-of-semester test. These tests are a combination of simple multiple-choice questions and technology-enhanced (TE) questions.

### Course Goals

By the end of this course, you will be able to do the following:

- Examine the key elements of cybersecurity concepts and programs.
- Analyze common cybersecurity errors and threats and ways of reducing the threats.
- Examine the applications and techniques of cryptography and steganography.
- Prepare plans for how to mitigate cyber risks and threats, including insurance, incident handling, and contingency planning.
- Analyze laws, standards, and ethical issues related to cybersecurity.
- Discover career opportunities within the cybersecurity field.

## General Skills

To participate in this course, you should be able to do the following:

- complete basic operations with word-processing software, such as Microsoft Word or Google Docs
- complete basic operations with presentation software, such as Microsoft PowerPoint or Google Docs presentation
- perform online research using various search engines and library databases
- communicate through email and participate in discussion boards

*For a complete list of general skills that are required for participation in online courses, refer to the Prerequisites section of the Plato Student Orientation document, found at the beginning of this course.*

## Credit Value

Introduction to Cybersecurity is a 0.5-credit course.

## Course Materials

- computer with Internet connection and speakers or headphones
- Microsoft Word or equivalent
- Microsoft PowerPoint or equivalent

## Course Pacing Guide

This course description and pacing guide is intended to help you keep on schedule with your work. Note that your course teacher may modify the schedule to meet the specific needs of your class.

## Course Components and Grading Rubric

The table gives a breakdown of the weight for each component in the course. Weight represents the percentage of the total score coming from each activity.

| Course Components  | Count | Weight |
|--|-------|--------|
| <b>Module.</b> <i>Each module in this course contains an interactive tutorial and an associated mastery test. Tutorials may include one or more Lesson Activities that constitute tasks associated with the tutorial. The module score comes from a student's score on the mastery test.</i> | 13    | 30%    |

|  |           |             |
|--|-----------|-------------|
| <b>Discussion.</b> <i>Online discussions allow for higher-order thinking about terminal objectives. An online threaded discussion mirrors the educational experience of a classroom discussion. Teachers can initiate a discussion by asking a complex, open-ended question. Students can engage in the discussion by responding both to the question and to the thoughts of others. Each unit in a course has one predefined discussion topic; teachers may add more discussion topics.</i> | 5         | 20%         |
| <b>Course Activity.</b> <i>Course Activities are similar to Unit Activities in scope but may be found at any point in the course, either to prepare the student for new learning or to act as a performance-based activity required for a learning objective. Like Unit Activities, Course Activities include simple rubrics, and sample answers are available for teachers. Course Activities are teacher graded.</i>   | 5         | 30%         |
| <b>End of Semester Test.</b> <i>The end of semester test (EOS) appears at the end of the course. Students are delivered a few items from every tutorial in the course in order to assess the major course objectives.</i>  | 1         | 20%         |
| <b>Total</b>   | <b>24</b> | <b>100%</b> |

\*Teachers may manually adjust these weights if desired, per district grading requirements.

| Day              | Activity/Objective   | Type               |
|------------------|--|--------------------|
| 1 day:<br>1      | <b>Syllabus and Plato Student Orientation</b><br><i>Review the Plato Student Orientation and Course Syllabus at the beginning of this course.</i>                          | Course Orientation |
| 4 days:<br>2–5   | <b>Cybersecurity Errors and Threats</b><br><i>Identify and discuss the different types of cybersecurity errors and threats.</i>  | Lesson             |
| 4 days:<br>6–9   | <b>Cybersecurity Concepts and Programs</b><br><i>Describe cybersecurity concepts and key elements of cybersecurity programs.</i>   | Lesson             |
| 4 days:<br>10–13 | <b>Course Activity: Encrypting, Decrypting, and Recovering Deleted Files</b><br><i>Describe how to perform steganography actions, including how to use standard tools.</i> | Course Activity    |
| 1 day:<br>14     | <b>Para Jumble</b>   | Game               |
| 1 day:<br>15     | <b>Course Discussion 1</b>   | Course Discussion  |

| Day              | Activity/Objective  | Type              |
|------------------|---|-------------------|
| 4 days:<br>16–19 | <b>Protecting Your Computer System</b><br><i>Discuss various security measures used to secure and safeguard personal computers..</i>  | Lesson            |
| 4 days:<br>20–23 | <b>Operating System Security</b><br><i>Describe various security measures that can safeguard an operating system.</i>   | Lesson            |
| 1 day:<br>24     | <b>Course Discussion 2</b>  | Course Discussion |
| 4 days:<br>25–28 | <b>Protecting Yourself From Cyber Attacks</b><br><i>Describe various safety measures you can take to protect yourself from cyber attacks.</i>                               | Lesson            |
| 4 days:<br>29–32 | <b>Course Activity: Securing an Operating System</b><br><i>Describe an operating system and phishing and how to keep an operating system secure.</i>                        | Course Activity   |
| 1 day:<br>33     | <b>Space Jumble</b>   | Game              |
| 4 days:<br>34–37 | <b>Firewalls and Server Management</b><br><i>Describe the features of different types of firewalls and explain how to create a network with a demilitarized zone (DMZ).</i> | Lesson            |
| 5 days:<br>38–42 | <b>Security of Virtual Private Networks</b><br><i>Describe security options for virtual private networks (VPNs) and other evolving technologies.</i>                        | Lesson            |
| 5 days:<br>43–47 | <b>Security of Wireless Networks</b><br><i>Identify the components of wireless networks and examine various security options.</i>   | Lesson            |
| 1 day:<br>48     | <b>Course Discussion 3</b>  | Course Discussion |
| 1 day:<br>49     | <b>Thwack-A-Mole</b>  | Game              |

| Day              | Activity/Objective  | Type              |
|------------------|---|-------------------|
| 5 days:<br>50–54 | <b>Cryptography</b><br><i>Discuss and describe cryptography and decryption tools.</i>   | Lesson            |
| 4 days:<br>55–58 | <b>Course Activity: Decrypting Cipher Text</b><br><i>Describe the different types of ciphers, and how to decrypt the cipher text for various ciphers.</i>   | Course Activity   |
| 5 days:<br>59–63 | <b>Risk Management and Insurance</b><br><i>Discuss risk management and cyber insurance.</i>   | Lesson            |
| 1 day:<br>64     | <b>Para Jumble</b>  | Game              |
| 5 days:<br>65–69 | <b>Contingency Planning and Incident Handling</b><br><i>Discuss contingency planning, types of web attacks, and elements of incident handling.</i>  | Lesson            |
| 1 day:<br>70     | <b>Course Discussion 4</b>  | Course Discussion |
| 4 days:<br>71–74 | <b>Course Activity: Risk Assessment and Incident Handling Plan</b><br><i>Describe an attack, a risk assessment plan, and an incident handling plan for the attack described.</i>                            | Course Activity   |
| 4 days:<br>75–78 | <b>Laws, Standards, and Ethics in Cybersecurity</b><br><i>Describe laws, standards, and ethical issues related to cybersecurity and discuss Automated Indicator Sharing (AIS) and the IT audit process.</i> | Lesson            |
| 1 day:<br>79     | <b>Course Discussion 5</b>  | Course Discussion |
| 4 days:<br>80–83 | <b>Careers in Cybersecurity</b><br><i>Discuss the evolution of cybersecurity and describe career opportunities in the field.</i>  | Lesson            |
| 4 days:<br>84–87 | <b>Course Activity: Audit Plan and Career Plan</b><br><i>Discuss how to create an audit plan and describe a career plan, job duties, and skills required for a cybersecurity career.</i>                    | Course Activity   |

| Day          | Activity/Objective          | Type       |
|--------------|-----------------------------|------------|
| 1 day:<br>88 | <b>Space Jumble</b>         | Game       |
| 1 day:<br>89 | <b>Course Review</b>        |            |
| 1 day:<br>90 | <b>End-of-Semester Exam</b> | Assessment |

## Course Map

You will achieve course level objectives by completing each lesson's instruction, assignments, and assessments. For a detailed look at how the materials meet these objectives, review the [course map](#).