



Syllabus for CYB 700

Fundamentals of Cybersecurity

NOTE: This syllabus document contains the basic information of this course. The most current syllabus is available in the full course.

Course Description

This course introduces fundamental concepts and design principles in cybersecurity. Students will understand what needs protection and why it is essential. Topics include CIA (Confidentiality, Integrity, and Availability), threats, attacks, defense, secure design principles, access control and password management, security policies, critical controls, incident-handling and contingency planning, risk assessment and management.

Prerequisite(s)

None

Program Outcomes

This course addresses the following competencies and program outcomes of the Master of Science in Cybersecurity:

- Program Outcome 1: Foundational – Students will describe key principles of cybersecurity.

Course Outcomes

Upon completing this course, you will be able to do the following:

- Describe the fundamental concepts of cybersecurity, including potential system attacks and the actors that might perform them.
- Describe cyber defense tools, methods and components, and apply cyber defense methods to prepare a system to repel attacks.
- Describe appropriate measures to be taken when a system compromise occurs.
- Define the principles of secure design and describe their importance regarding the development of security mechanisms that can implement desired security policies.
- Analyze common security failures and identify the specific design principles that have been violated.
- Identify the design principles involved or needed in specific scenarios and the importance of minimizing the effects of security mechanisms.

Course Requirements/Components

Knowledge Check Quizzes

Each module contains a knowledge check quiz consisting of five (5) multiple-choice questions that were selected based on the readings for that module.



Written Assignments

Generally, there is a written assignment due each week. The purpose of the written assignment is for you to explore a particular topic or concept more deeply.

Discussions

The discussions for this course are based on the case study found in the textbook. One of the more interesting components of the case study is the ethical decision-making questions. These questions are meant to engage you in thoughtful discussion and polite debate.

Mid-term Long Essay Exam

The mid-term exam consists of fifty (50) multiple-choice questions and five (5) long answer questions based on concepts covered up to that point.

Final Project

The final project provides you an opportunity to select, research, and present on a topic of your choosing.

Grading

The following grading scale will be used to evaluate all course requirements and to determine your final grade:

Grade	Percentage Range
A	94% or greater
A-	90% - < 94%
B+	87% - < 90%
B	84% - < 87%
B-	80% - < 84%
C+	77% - < 80%
C	74% - < 77%
C-	70% - < 74%
F	0 - < 70%

Assignments	Percentage
Quizzes	5%
Programming Assignments	10%
Class Discussions	10%
Cryptography Assignments	35%
Course Project	40%
Total	100%