CALIFORNIA STATE UNIVERSITY, DOMINGUEZ HILLS

Course No. : CTC 428 – Fall 2022
Course Title ***:*** *OS Security*
Prerequisite :
Units : 3 units (3 hours lecture)
Meetings : Th 7:00 -9:45

Instructor/Office/Phone/Fax/E-mail/Office Hours:

Dr. Bhrigu Celly

Voice: 951.850.3772
Fax:
bcelly@csudh.edu

Text Book:

Jaeger, T., Operating Systems Security, Morgan & Claypool, 2008

Objectives:

This course takes an in depth look at operating system security concepts and techniques. It examines theoretical concepts that make the world of security unique. Also, this course will adopt a practical hands-on approach when examining operating system security techniques.

COURSE OUTCOMES:
Upon completing this course students will be able to:

- Discuss the fundamentals of operating system and network security
- Support the planning, implementation, and auditing of a system's security
- Be able to discuss security as it applies specifically to the IBM Mainframe, and generically to all computing environment
- Formulate a plan to respond to intruders in an information system
- Understanding of Government Guidance involving Trusted Computers and TEMPEST Architecture

The format of this course includes lectures and hands-on assignments. Students will also complete a project and present it as part of the course. The course contains a project that will include a presentation at the end of the quarter. Students will randomly be asked questions about presentation of their peers during the presentation sessions. Attendance is mandatory.

GRADES:
The following grading scale will be used:

Score	Grade	Score	Grade
94-100	A	91-93	A-
88-90	B+	84-87	B
81-83	B-	78-80	C+
74-77	C	71-73	C-
68-70	D+	64-67	D

0-63	F		

GRADING:

The weighting of the coursework is listed below:

Midterm	**100**
Final Exam	**100**
Midterm Presentation	**150**
Final Presentation	**150**
Assignments and Homework's	**500**
Total:	**1000**

AMERICANS WITH DISABILITIES ACT

CSUDH adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with temporary and permanent disabilities. If you have a disability that may adversely affect your work in this class, I encourage you to register with Disabled Student Services (DSS) and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: no accommodation can be made until you register with the DSS. For information call (310) 243-3660 or to use the Telecommunications Device for the Deaf, call (310) 243-2028, or go to: *http://www4.csudh.edu/dss/*

COMPUTER INFORMATION LITERACY EXPECTATIONS

It is expected that students will:

1. *Use Microsoft Word for word processing unless otherwise approved by the instructor,*
2. *Be familiar with using email as a communication tool and check your official campus email account at least every other day;*
3. *Be able to access websites and online course materials which may require Flash and other plug-ins;*
4. *Use the library databases to find articles, journals, books, databases and other materials;*
5. *Be able to create an effective PowerPoint presentation;*
6. *Be able to record audio (ideally video) to share with the instructor via the web; and*
7. *Have regular access to a computer and internet access for the term of this course.*

ACADEMIC INTEGRITY

Academic integrity is of central importance in this and every other course at CSUDH. You are obliged to consult the appropriate sections of the University Catalog and obey all rules and regulations imposed by the University relevant to its lawful missions, processes, and functions. ***All work turned in by a student for a grade must be the students' own work.*** Plagiarism and cheating (e.g. stealing or copying the work of others and turning it in as your own) will not be tolerated, and will be dealt with according to University policy. The consequences for being caught plagiarizing or cheating range from a minimum of a zero grade for the work you plagiarized or cheated on, to being dropped from the course.

BEHAVIORAL STANDARDS

Behavior that persistently or grossly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students' ability to learn and an instructor's ability to teach. The instructor may require a student responsible for disruptive behavior to leave class pending discussion and resolution of the problem and may also report a disruptive student to the Student Affairs Office (WH A-410, 310-243-3784) for disciplinary action.

COURSE POLICIES:

- Deliverables (Class Assignments, Projects) submitted late are not accepted.
- Deliverables (Class Assignment, Projects) not submitted before the end of the final class will earn 0%.

- Any exceptional, non-academic circumstances need to be discussed with the instructor as soon as they arise, prior to the due date of the deliverable. At the time of the discussion, NO make-up work will be assigned.

The instructor reserves the right not to award credit for deliverables that are incomplete. Partial credit is awarded at the instructor's discretion, and only for work that merits such an award. Assignments that are incomplete or incongruous with the specifications may be returned to the student.

MIDTERM & FINAL EXAM:
Midterm exam is during the 8th week of the class and the date for the final exam is based on the final examination schedule printed in the campus Class Schedule. All projects are due no later than the last week of the semester.

No makeup or early exams will be administered.

Course Outline:

WEEK #	DATE	TOPIC	*Reading Assignment/ Computer Lab Topic/In Class Assignments*
Week 1	TBD	Introduction & Philosophy	
Week 2	TBD	Memory Vulnerabilities	Mini Proj/HW 1 - Security Principles
Week 3	TBD	OS Security	
Week 4	TBD	Cryptography Basics	Mini Proj/HW 2 - Security Mechanisms
Week 5	TBD	Applied Cryptography/ Bitcoin	
Week 6	TBD	Access Control Fundamentals /Multics	Mini Proj/HW 3 - Security Problems
Week 7	TBD	Security in Ordinary Operating systems	
Week 8	TBD	Verifiable Security Goals	Midterm
Week 9	TBD	Security Kernels	Mini Proj/HW 4 - Architectures
Week 10	TBD	Securing Commercial Operating Systems	
Week 11	TBD	Blockchain	Mini Proj/HW 5 - Special Topics (Systems)
Week 12	TBD	Building a Secure OS for Linux	
Week 13	TBD	Secure Capability Systems	Mini Proj/HW 6- Special Topics (Software)
Week 14	TBD	Secure Virtual Machine Systems	
Week 15	TBD	System Assurance, Trusted Extensions	
Week 16	TBD	Final Presentation	