Metropolitan State University of Denver
Regular Course Syllabus

CSS - 2754 - Host Security	Fall 2016

Status	completed
Tracking:	LAS1617-28
Department	Mathematical and Computer Sciences, Department of
Prefix:	CSS
Course Number:	2754
Course Type:	Computer Science Studies
Course Title:	Host Security
Transcript Course Title:	Host Security
Equivalent/ Crosslisted?	
List all equivalent courses:	
List all crosslisted courses:	
Check All That Apply:	Elective
Credit Hours:	3
Schedule Type:	Lecture
Grade Mode:	Letter
Lecture:	45
Lab:	
Internship:	
Practicum:	
Other:	
Additional Student Work Hours per course:	90
Variable topics umbrella course:	No
If yes, number of credits/ repeats allowed	
Specified repeatable course:	No
If yes, number of credits/ repeats allowed	
Prerequisite(s):	CSS 2751 or permission of instructor
Corequisite(s):	
Prerequisite(s) and/or Corequisite(s):	
Banner Prerequisite(s):	CSS 2751
Banner Corequisite(s):	
Banner Prerequisite(s) and/or Corequisite(s):	
Level	
Class	
Program/Major	

Student attribute	
Catalog Course Description:	This course introduces the means for keeping computers safe. The topics of intrusion detection and protection, protection mechanisms, and auditing are introduced. Specific approaches to anti-virus and -malware protection are discussed. The importance of business continuity including secure backups are covered. More advanced protection mechanisms such as SELinux, AppArmor, EMET, multi-factor authentication, and least privilege are included.
Required Reading and Other Materials will be equivalent to:	John R. Vacca (2013), Computer and Information Security Handbook, Second Edition, ISBN-13: 978-0123943972
Specific, Measurable Student Behavioral Learning Objectives:	1. Appraise different authentication and authorization mechanisms. 2. Assemble operating-specific security controls. 3. Assess approaches to detecting and quarantining malware. 4. Create a host hardening plan for various operating systems. 5. Determine how to balance the need for security with the need for services. 6. Choose and use an appropriate log monitoring system. 7. Manage encrypting file systems for an organization.

Detailed Outline of Course Content (Major Topics and Subtopics) or Outline of Field Experience/ Internship	I. Common threats.
	    A. Keyloggers.
	    B. Backdoors.
	    C. Exfiltration.
	    D. Ransomware.
	    E. Rootkits.
	    F. Advanced Persistent Threats.
	II. Authentication.
	    A. Three basic types.
	    B. Advanced mechanisms.
	III. Authorization.
	    A. Privilege levels.
	    B. Privilege escalation.
	IV. Concept of least privilege.
	V. Anti-malware software.
	    A. Antivirus.
	    B. Signature- and anomaly-based.
	    C. Antispyware.
	    D. Protecting browsers.
	VI. Interacting with networks.
	    A. Protection against redirection.
	    B. Remote authentication and authorization.
	    C. Password hashes.
	    D. Secure network communications.
	VII. Host firewalls.
	    A. Levels.
	    B. Stateful.
	    C. Ingress and egress.
	VIII. Providing services.
	IX. Operating system structure.
	    A. Virtual machines.
	    B. Kernels.
	    C. Libraries.
	    D. Drivers.
	    E. User capabilities.
	X. Hardened operating systems in general.

	XI. Operating systems case studies.
	        A. Linux.
	             1. SELinux and Application Armor.
	             2. IPTables.
	        B. Windows.
	             1. Group policies.
	             2. EMET.
	XII. Encrypting filesystems.
	XIII. Log file analysis.		

Evaluation of Student Performance	Required: a midterm and final exam and four papers. Optional: quizzes. participation, classwork, homework, projects.		
Learning Objectives			
Distribution of Credit Hours	3 (3+0)		
Steps	**Decision**	**Date**	
Originator			
Steve Beaty	approve	09/12/2016 10:08AM	
Department Curriculum Committee Chair			
Clark Dollard	approve	09/12/2016 02:58PM	
Department Chair			
Lindsay Packer	approve	09/12/2016 03:39PM	
Dean's Office Tracking Assignment			
Cynthia Philbrook	approve	09/14/2016 08:41AM	
Substantive College Level			
Linda Lang-Peralta	approve	12/07/2016 04:40PM	
Mona Mocanasu	approve	10/05/2016 01:20PM	
Steve Beaty	approve	10/07/2016 10:44AM	
Faculty Senate President			
Matthew Makley	None		
Erica Buckland	force-approve	01/05/2017 10:58AM	
AVP Academic and Student Affairs			
Bernice Harris	approve	01/05/2017 11:13AM	