

CS 795/895: Topic in .Net Security
Summer 2015
Course Outline

Instructor: Ravi Mukkamala
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Lecture: Monday, Wednesday 5:15-9:00 PM (ECSB 2120)
Office Hours: Monday, Wednesday: 4:00-5:00 PM (OCNPS 137)
Prerequisites: CS 555 & CS 471
Text: [Programming Microsoft .NET](#) Jeff Prorise ISBN 0-7356-1376-1 2002

Beginning ASP .Net Security, Barry Dorans, ISBN: 978-0-470-74365-2, Wiley Publications, 2010
Programming .NET Security (Paperback), O'Reilly
(Optional)
by [Adam Freeman](#), [Allen Jones](#)
C#: How to program, Deitel, et al, Prentice Hall

Objectives: Gain a basic understanding of systems programming for the Windows System platforms. Emphasis will be placed on network application programming. This course will cover the architecture of the windows programming environment. Major areas of study will be .Net and parts of J2EE. This course will provide a practical application of material from operating systems, computer networks, data structures and object oriented design.

PreRequisites: Strong Background in C++ or JAVA and Operating Systems. Network and Communications concepts would also be useful. Because of the importance of .NET in windows programming, you should be comfortable with the principles of object oriented programming and their implementation.

Course Objectives

Understand the issues and explore solutions for building secure distributed applications. We will discuss some key issues in distributed systems and secure systems. We will then use .Net framework to explore and experiment with the ideas that we discuss. This course certainly requires students to be explorative in nature---it is not a 500-level course.

Attendance: Attendance at classes is not mandatory, but students are responsible for all material covered and announcements made in class. Consequently, if you are going to miss class, be sure to get notes, handouts, etc., from another class member. Class notes and other information will be available at the following WebSite:
<http://www.cs.odu.edu/~mukka>

Cheating: Everything turned in for grading in this course must be your own work. The instructor reserves the right to question a student orally or in writing and to use his

evaluation of the student's understanding of the assignment and of the submitted solution as evidence of cheating. Violations will be reported to the Honor Council for consideration for punitive action. However, it is entirely appropriate seek and give assistance on procedural matters (such as how to send e-mail, how to run the debugger, how to send files from a home PC to a UNIX workstations). If there is any question on whether a particular behavior is appropriate, the student is encouraged to seek guidance from the instructor.

Grading:

Exam 1	100	
Exam 2	100	
Course Project	100	
Homework	100	

Tentative Schedule

Date	Topic	Assignment
May 18 (M)	Intro to .Net, distributed systems and security, and Java security	HW#1
May 20 (W)	Part 1	
May 25 (M)	Memorial day --- No class	
May 27 (W)	Part 2	
June 1 (M)	Part 3/Part 4	HW#2
June 3 (W)	Part 5/Review	
June 8 (M)	Examination I	HW#3
June 10	Part 5/Part 6	HW #4
June 15	Part 7/Part 8	HW#5
June 17	Part 9/Review	
June 24	Examination II	

Topics to cover

Part 1	.Net Framework ASP.Net examples C# Examples ADO.net example
Part 2	Types of attacks Who is responsible for preventing attacks How to prevent attacks Storing secrets Password policies
Part 3	ASP.Net security Framework Windows authentication Forms authentication Passport authentication
Part 4	Authorization Web services Web services security Impersonation
Part 5	Assemblies Application domains Lifetime of a secure application Runtime security
Part 6	Evidence Permissions Security Policy
Part 7	Code access security Role based security
Part 8	.Net Cryptography Hashing Symmetric key cryptography Asymmetric key cryptography Digital signatures
Part 9	XACML and security policies