Course number and name:	**CS 09612: Network Security**
Credits and contact hours:	3 credits/3 contact hours
Instructor's or course coordinator's name:	Chenxi Qiu
Text book, title, author, and year:	*Network Security: Private Communication in a Public World* (2nd Edition) 2nd Edition, Charlie Kaufman, Radia Perlman, and Mike Speciner, 2002; .

Specific course information

Catalog description: This is a graduate level course that covers the fundamentals of network security and cryptology. The course will cover such topics as cryptographic systems necessary for security, public key infrastructure, principles of data integrity, authentication, and key management, Internet architecture and TCP/IP protocol suite, application layer security, secure sockets layer and transport layer security protocols, IPSec and distributed denial of service attacks. Students will prepare and deliver technical presentations on state-of-the-art research topics in network security.

Prerequisites: CS 09510 Computer Networks

Type of Course: ☐ Required ☒ Elective ☐ Selected Elective

Specific goals for the course:

1. Students will understand the need for various Network Security Protocols
2. Students will be able to describe advantages and disadvantages of various Network Security Protocols.
3. Students will be able to explain the purpose of configuration parameters of various Network Security Protocols.

Required List of Topics to be covered:

1. Introduction to Network Security
2. Introduction to Computer Networks
3. Firewall
4. Intrusion Detection System
5. Introduction to Cryptography
6. Secret Key Cryptography
7. Hashes and Message Digests
8. Public Key Cryptography
9. Authentication
10. Network Security Protocols