

ROUTE SHEET
PERMANENT COURSE CHANGE/APPROVAL
(Attach course change request form)

Prefix & Course
Number IS 586 Title Network Security

Abbreviation for Schedule (20 characters): Network Security

Nature of course request (Mark all that apply)

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> Add a course | <input type="checkbox"/> Prerequisite change | <input type="checkbox"/> LACC course |
| <input type="checkbox"/> Delete a course | <input type="checkbox"/> Number/Prefix change | <input type="checkbox"/> Undergraduate course |
| <input type="checkbox"/> Title change | <input type="checkbox"/> Description change | <input checked="" type="checkbox"/> Graduate course |
| <input type="checkbox"/> Writing Intensive (WI) | <input type="checkbox"/> Multicultural Diversity (D) | <input type="checkbox"/> 400/500 course |
| <input type="checkbox"/> Quantitative Literacy (Q) | <input type="checkbox"/> Honors course (H) | <input type="checkbox"/> Other: _____ |

1) Faculty Sponsor Signature Yanwei Wu by Sarah Cuvarado Date 2/20/14
2) Dept./Program Coordinator Sat M Date 2/20/14
3) Division Chair not on Date 2/20/14
Curriculum Chair Sat M Date 2/20/14

- 4) Faculty Senate Committees: The Curriculum Committee reviews all course proposals except for honors and graduate courses, which are reviewed instead by the Honors Committee or Graduate Committee. All 400/500 "split" courses must be approved by both the Curriculum and Graduate Committees. All curriculum committee decisions are forwarded to the Senate Executive Committee.

a) Curriculum Committee Chair _____ Date _____
___ N/A ___ Approved ___ NOT Approved

b) Graduate Committee Chair _____ Date _____
___ N/A ___ Approved ___ NOT Approved

c) Honors Committee Chair _____ Date _____
___ N/A ___ Approved ___ NOT Approved

5) Faculty Senate President _____ Date _____
___ Approved by the Senate Executive Committee
___ Approved by the Senate ___ NOT Approved (Return to sponsor)

6) Appropriate Dean _____ Date _____
___ Approved ___ NOT Approved (Return to Faculty Senate President)

7) Provost/VPAA _____ Date _____
___ Approved ___ NOT Approved (Return to Faculty Senate President)

REQUEST FORM PERMANENT COURSE APPROVAL

Initiated by (print): Yanwei Wu Date: 12.10.13

ADDING A COURSE

Prefix/Number	Descriptive Title	Cr. Hours
IS 586	Network Security	4

Catalog Description:

The course focuses on fundamental computer networking security concepts, networking attacks and protection, and other security problems in networking applications. This course introduces the attacks on each network layer—including the link layer, network layer, and transport layer. It also addresses security problems related to DNS, Web Services, and E-mails.

Prerequisite: CS 350 or CS 650

Course Goals and Objectives:

Upon completion of the course, students will be able to:

- Categorize different network threats and attacks in order to evaluate malicious behaviors in networks;
- Assess public and private key cryptography and PKI systems in order to prepare a suitable cryptographic strategy for a given system or network;
- Gauge the vulnerabilities of each protocol layer in order to revise the network protocols and establish a safe network environment;
- Choose from the appropriate defense mechanism(s), IDS and IPS, in order to effectively protect the network;
- Describe the key elements of wireless network security.
- Comprehend the mechanisms of secure network applications for e-mail, HTTP, and DNS;
- Judge security threats to and attacks on these applications and generate the appropriate security strategy.

Justification for adding the course (e.g. alignment with other institutions, program revision, etc.):

This course is among a sequence of proposed security courses to the curriculum committee. The Computer Science Division is working on the creation of a sequence of security courses to meet the current needs of the state and nation. Students who finish the sequence of courses will get a certification from WOU and write the certification as a skill on their resume. This course and its corresponding graduate level course were given during 2012 academic year. The student evaluation shows that students' satisfaction with these courses is high.

Briefly describe other WOU faculty/programs consulted (attach additional sheet(s) if necessary).

Faculty in the Computer Science Division has been consulted. This is a CS major course, no outside faculty or programs are affected by the addition of this course.

Faculty and Facilities Needed:

1 Smart classroom, 1 Instructor

Attach brief course outline

IS586: Network Security

Instructor: Prof. Yanwei Wu
CS Department, WOU

Course Objectives:

Course focuses on fundamental computer networking security concepts, networking attacks and protection, and other security problems on networking applications. This course will introduce the attacks on each network layer, including link layer, network layer and transport layer, and security problems related to DNS, Web Services, and Emails. Students will learn how to detect the malicious attacks and protect the network system from attacks. Up-to-date research results will be distributed to students.

Prerequisite: CS350 or CS650

Outcomes:

1. Students will be able to identify and characterize different network threats and attacks in order to know malicious behaviors in networks.
2. Students will be able to assess the public and private key cryptography and PKI system in order to choose the suitable encryption algorithms or PKI systems for a given network system.
3. Students will be able to evaluate the vulnerabilities of each protocol layer in order to improve the network protocols and choose a safe network environment.
4. Students will be able to choose the appropriate defense mechanism(s): IDS and IPS in order to protect the network with the right tool.
5. Students will be able to tell wireless network security in order to understand main topics in wireless security.
6. Students will be able to select secure network applications: email, HTTP, and DNS in order to understand the mechanisms in the network application and identify security threads and attacks in these applications.

General Information:

All handouts and important information will be posted or announced in class.

Teaching Personnel:

Instructor name: Yanwei Wu

Office: ITC 310-D

Phone: 89121(O)

Email: wuya@wou.edu

Textbook:

TextBook: *Introduction to Computer Security* by Michael T. Goodrich & Roberto Tamassia

Reference books:

Network Security Essentials by William Stallings

CompTIA Netwrok+ Study Guide by Todd Lammle

Papers and handouts will be posted on the course website or distributed in class.

Course Content:

Week1: Introduction & Concepts

-- HW1&Lab1

Week2: Protocol Vulnerability

-- Project1

Week3: Network Defense 1
 Week4: Network Defense 2 -- HW2&Lab2
 Week5: HTTPs
 Week6: Web Security -- HW3&Lab3
 Week7: DDOS -- Project2
 Week8: Email Security -- HW4&Lab4
 Week9: Wireless Security
 Week10: Student Presentation
 Week11: (Final)

We will mainly cover the topics listed above. And we will try to cover some other topics if time permits and there are enough students who are interested.

Grading:

There will be homework, labs, two projects, and two exams. They will count toward the grade as follows:

Homework(10%), Labs(10%), Projects (10%), Midterm Exam (30%), Final Exam (40%).

Final Grade:

100%-92%	A	91%-90%	A-		
89%-88%	B+	87%-82%	B	81%-80%	B-
79%-78%	C+	77%-72%	C	71%-70%	C-
69%-68%	D+	67%-62%	D	61%-60%	D-
59%-0% F					

The instructor reserves the right for some small changes of grading. Any variation will be made for the benefit of students. Contact the instructor if there is still a disagreement.

Plagiarism:

In this course you are encouraged to discuss the problems with your classmates. However, you are not allowed to work together on the final solution of the problems except in a group project. If we find similar solutions, it will be treated as cheating! You get zero on the cheated assignment if you are caught once in any form of the cheating. In addition, the violation will also be reported to the division and the university.

Disability:

Please contact the Office of Disability Service if you need further help. The information of ODS is following:

<http://www.wou.edu/student/disability/>

Phone: 503-838-8250

Email: ods@wou.edu

NOTES:

1. The instructor reserves the right to adjust the class schedule and grading policy according to the class progress.
2. It is the policy of the computer science department that you must receive a passing grade on the final exam (60% or higher) in order to pass the class.
3. If you are going to miss the class, please ask the student affairs office to send me an email. Otherwise, no excuse is accepted.
4. Exams or quizzes must be taken at the times and dates scheduled unless you make other arrangements with me at least 24 hours prior to the exam or the quiz. There are NO makeup exams or quizzes!!
5. The final is NOT reschedulable.
6. Laptops or pads are not recommended to bring to the class since they are not necessary unless you present your work.