

**Old Dominion University**  
**College of Sciences**  
**Department of Computer Science**  
**CS 464/564: Networked Systems Security**  
**Syllabus – Spring 2026**

**Instructor:** Dr. Soad Ibrahim  
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**Office Hours:** Check my office hours on Canvas

**Required Text Book:**

Network Security Essentials Applications and Standards (5th Edition), William Stallings, Prentice Hall; 6 edition. ISBN: 978-0-13-452733-8  
(Note: 5th Edition is also acceptable)

**Supplement Text (Optional)**

Counter Hack Reloaded: A Step-by-Step Guide to Computer Attacks and Effective Defenses (2nd Edition) - Edward Skoudis

**Catalog Course Description:**

**CS 464/564 Networked Systems Security (3 Credit Hours)**

Authentication in cyber systems including password-based, address-based, biometrics-based, and SSO systems; Authorization and accounting in cyber systems; Securing wired and wireless networks; Secured applications including secure e-mail services, secure web services, and secure e-commerce applications; Security and privacy in cloud environments.

**Prerequisites:** MATH 162M

**Course Objectives:**

This course gives students a strong foundation on the different topics of network security.

Upon successful completion of this course, students will:

- Gain experience with the online course system.
- Recognize the general purpose and goals of the online course
- Gain the importance of network security.
- Familiarize with several terminologies that are used to define network, information, and computer security.
- Distinguish between different network technologies
- Identify different threats, vulnerabilities, and various types of attacks and hacks in network
- Identify the role of cryptography in network security and information security
- Gain knowledge on digital signatures, digital certificates, and the concept of a public key infrastructure
- Solidify mathematical foundations of cryptography, number theory and information theory
- Perform basic cryptanalysis based on entropy on examples such as BASE64 encodings
- Familiarize with typical Authentication Systems and Human Authentication Mechanisms

- Describe IP security
- Explain different security systems to secure transport layer.
- Distinguish between different mechanisms for web security.
- Analyze the threats of intruders and malicious software
- Explain systems for intrusion detections and countermeasures for malicious software
- Identify the concept of a firewall, pros and cons, and explains how it functions.
- Explains the functioning of virtual private networks (VPNs) and how it works.
- Identify the threats and vulnerabilities associated with 802.11 wireless networks

More specific objectives for each topic are listed within each module in Canvas.

## How the Course Works and Course Schedule

### Delivery Method

This online course employs several methods of delivery and learning activities including online lectures and presentations, threaded discussions, Web sites, video clips, reading and written assignments, self-assessment checks, examinations, e-mail, and electronic access of information.

The course is divided into five units:

1. Introduction to Network Security
2. Cryptography
3. Network Security
4. System Security
5. Wireless Security

The course has Three exams. The first exam will be at the end of unit 2 while the second exam will be at the end of unit 3. The third exam will be at the end of the course.

### Grading Criteria

Your grade in this class will be based on the following:

Homework Assignments	70%	These are to be completed individually.
Exam I	10%	Must be completed individually.
Exam II	10%	Must be completed individually.
Exam III	10%	Must be completed individually.

### Grading Scale

The grading scale is as follows

#### Grading Scale for *Undergrad* Students (CS 464):

Points	Letter Grade
92-100	A
90 - <92	A-
88 - <90	B+
82 - <88	B
80 - <82	B-
78 - <80	C+
70 - <78	C
68 - <70	C-
60 - <68	D
0 - <60	F

## Grading Scale for *Graduate* Students (CS 564):

Points	Letter Grade
95 -100	A
90 - <95	A-
88 - <90	B+
84 - <88	B
80 - <84	B-
78 - <80	C+
72 - <78	C
69 - <72	C-
0 - <69	F

### **Late Submission:**

Late submission is not accepted.

### **Student Responsibilities**

#### **Managing Time**

Students are expected to spend 10 hours per week on the course materials and assignments. Out of 10 hours, students are expected to spend approximately 3 hours per week to read the material, approximately another 3 hours/week for the homework.

#### **Utilizing Online Components**

Refer to the START HERE section within the Blackboard mmenu and the course tour

#### **Online College Classroom Conduct**

Netiquette is the accepted behavior for online participation. Students are expected to follow good Netiquette rules. The following is a list of general guidelines for this course:

- Check your grammar and spelling
- Keep your comments focused on the topic
- Strive to write succinctly and clearly
- Share your knowledge and include supportive evidence for your comments
- Do not use all capital letters as that is viewed as shouting
- Avoid flaming—disrespectful language is unacceptable

**Canvas:** You should check Canvas for announcements concerning course assignments. Grades will be posted on Canvas. It is the student's responsibility to inform the instructor of misreported grades within **three days** after they are posted on Canvas.

**Exams:** Exams will be open book.

**There are no 'make-ups' for the exams.**

**Homework Assignments:** Homework Assignments will be turned in through the **Canvas**. Late submissions will not normally be permitted.

While the students are encouraged to discuss the homework assignments, each individual should prepare their own answers. Any violation of this rule will be considered as cheating and will be dealt with accordingly.

**Make-up Tests and Late Assignments:**

Late homework and make-up exams normally will **not** be permitted. I will give appropriate consideration to documented emergencies, but such arrangements must be made with the Student Ombudsperson Services Office. Please follow the university rules at the following links:

<https://www.odu.edu/dean-students/student-outreach-support>

**Computer Account and Email:**

Students should have and use an ODU account. This is the account associated with your@odu.edu email. It will allow you to log into the course's Canvas site. All ODU students automatically receive this account, though you may need to activate yours, particularly if you are new to ODU.

Students should activate their @odu.edu e-mail accounts and check them every day. If a student chooses to have his/her messages forwarded to another account, it is the student's responsibility to take the necessary steps to have them forwarded.

All students in this course are responsible for making sure they have working accounts prior to the first assignment.

**Getting Help:**

If you have a question or you need more clarifications about the course materials, please feel free to talk with me in the office hours. Also, you can send me an email ([sfibrahi@odu.edu](mailto:sfibrahi@odu.edu)), but do not wait until the last minute, it may take time to receive a response (do not expect or rely on an immediate response).

**Course Disclaimer:**

Every attempt is made to provide a syllabus that is complete and that provides an accurate overview of the course. However, circumstances and events may make it necessary for the instructor to modify the syllabus during the semester. This may depend, in part, on the progress, needs, and experiences of the students.

**Academic Integrity**

Old Dominion University is committed to helping students succeed both personally and academically. To support this, students, faculty, and staff work together to create an environment that encourages learning and growth.

Students are expected to be honest in their academic work and respectful with their classroom behavior. All your actions should align with expectations in the Code of Student Conduct which can be found below.

**Academic Sabotage:** An intentional effort to corrupt or negatively impact another student's academic work.

**Cheating:** Copying, collaborating, or completing an academic exercise with or for other students or parties without permission from the class-assigned faculty member; paying someone to complete assignments; using any unauthorized materials to assist on assignments; misusing study aids such as Chegg, Quizlet, Course Hero, etc., to complete or pass class assignments; using test banks or copying answers from another source or student. This also includes unauthorized use of artificial intelligence sites including, but not limited to, ChatGPT, Dall-E, Alpha Code, Tensor Flow, Scribe, etc., and any act or behavior that gives

the student an unfair advantage.

**Fabrication:** Inventing, altering, falsifying, creating data, citation, or information in an academic exercise or for any improper purpose. Knowingly presenting false or falsified official documentation such as transcripts, doctor's notes, supervisor evaluations, application materials, etc.

**Facilitation:** Helping another person participate in any act of academic misbehavior (including, but not limited to, sharing course materials without permission).

**Misrepresentation:** Misleading an instructor as to the condition under which the work was prepared, including, but not limited to, undisclosed Artificial Intelligence (AI) use, substituting for another student, or permitting another person to substitute for oneself on any academic work.

**Plagiarism:** Intentional or unintentional use of someone else's scholarly or academic work, language, ideas, or other material as your own without proper citation in an academic exercise (whether reproduced or presented verbatim or in paraphrased or summary form); recycling a previous assignment as a new assignment without appropriate citation or notification and approval from faculty members.

**Special needs:** Old Dominion University is committed to ensuring equal access to all qualified students with disabilities in accordance with the Americans with Disabilities Act. **The Office of Educational Accessibility (OEA)** is the campus office that works with students who have disabilities to provide and/or arrange reasonable accommodations.

- If you experience a disability which will impact your ability to access any aspect of my class, please present me with an accommodation letter from OEA so that we can work together to ensure that appropriate accommodations are available to you.
- If you feel that you will experience barriers to your ability to learn and/or testing in my class but do not have an accommodation letter, please consider scheduling an appointment with OEA to determine if academic accommodations are necessary.

The Office of Educational Accessibility is located at 1021 Student Success Center and their phone number is (757)683-4655. Additional information is available at the OEA website: <http://www.odu.edu/educationalaccessibility/>

Students are encouraged to self-disclose disabilities that have been verified by the Office of Educational Accessibility by providing Accommodation Letters to their instructors early in the semester in order to start receiving accommodations. Accommodations will not be made until the Accommodation Letters are provided to instructors each semester.

### **Office of Counseling Services**

ODU's Office of Counseling Services (OCS) is a university agency with competent, diverse, and multidisciplinary professional staff. We are committed to supporting the emotional well-being, social development, and academic progress of all students at Old Dominion University.

College life can be a wonderful time of self-discovery, but for many, it is also a time when the awareness of mental health conditions increases. OCS services are available to assist with addressing mental health concerns that a student may be experiencing. You can learn more

about the broad range of confidential mental health services available on campus via our website at <http://www.odu.edu/counselingservices>. All services are free to ODU students.

**NOTICE/disclaimer:** This syllabus is intended to give the student guidance in what may be covered during the semester and will be followed as closely as possible. **However, the instructor reserves the right to modify, supplement and make changes as course needs arise.**