

Course Syllabus: CS 45203-55203 Computer Network Security

Spring 2021, Section 001

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Delivery: 100% Web-Based, Asynchronous

Dates: January 19, 2021 – May 5, 2021

Course Information

Course Description

This course provides an overview of network security including attacks and vulnerabilities and defense measures, secure network design, network and transport layers security, intrusion detection techniques, defense against denial of service attacks, network hardware, software, and applications attacks and their defense, security policies, legal and ethical issues in cyber and computer crimes.

Course Times and Location

This is a fully online, 15-week course. There will be no face-to-face meetings. All assignments have due dates; please refer to the course schedule located within the course.

Prerequisites

Prerequisites for this course include: CS 35201 and MATH 20011 or MATH 30011.

Course Learning Outcomes

By the end of the course, you will be able to:

1. Differentiate between symmetric and asymmetric cryptographic ciphers.
2. Examine various network security standards and their implications for computer network security.
3. Analyze the use of the STRIDE threat model in relation to network security.
4. Identify the types of security threats and attacks on computer networks.
5. Articulate major vulnerabilities concerning network and internet security.
6. Design a network security application.

Learning Materials

The following textbooks are recommended, but not required:

- Stallings, W. (2016). *Cryptography and network security: principles and practice* (Eighth edition.). Pearson.
- Speciner, M. et al. (2002). *Network security: Private communication in a public world*. (Second edition.). Safari Books. [Note: this title is accessible online via Safari Books and is linked directly within your course].

Technology Requirements and Skills

Computer Hardware and Software

Review the Technology Requirements section of the Getting Started in Your Online Course site within the Start Here folder for important information including links to free or discounted versions of required software.

A personal computer with consistent, reliable Internet access is required:

1. A DSL or cable connection to the Internet; dial-up is not sufficient.
2. Laptop or desktop computer with a minimum of a 2 GHz processor and 2 GB of RAM

You should have the following software installed on your computer:

1. An actively supported operating system such as Windows 10 for PC computers OR Mac OS X 10.11 or newer for Apple Mac computers.
2. Microsoft Office Suite (Word, Excel, PowerPoint).
3. Antivirus for Windows OS, Microsoft Security Essentials OR Antivirus for Mac OS, Sophos
4. A Blackboard Learn compatible browser, such as the latest version of Firefox, Chrome, or Safari. **Internet Explorer is NOT a supported browser and should not be used.**

Technology Skills

In order to be successful in this course, students will need to be comfortable navigating a computer operating system, launching and quitting applications, connecting to the Internet, using a web browser to search the World Wide Web, downloading, saving, and uploading files, and sending and replying to email. Students will also need to have basic skills in MS Word and MS PowerPoint.

Blackboard (Bb) Learn

This class will use Blackboard (Bb) Learn, the official learning management system (LMS) used by Kent State University to deliver course materials to university students. ALL course materials and activities will take place in Bb Learn.

In order to login to the online Bb Learn LMS, you will need a Kent State FlashLine User Name ID and password.

- You can login to Bb Learn either through FlashLine or via a direct link to the login page: <https://learn.kent.edu>

For help using the Blackboard (Bb) Learn system use the “Bb Learn Tutorials for Students” link in the main navigation of your course.

In general, Bb Learn works best using the latest version of most major web browsers, including Firefox, Chrome, and Safari.

Technology Help Guidelines

- A. **30-Minute Rule:** When you encounter struggles with technology, give yourself 30 minutes to ‘figure it out.’ If you cannot, then post a message to the discussion board; your peers may have suggestions to assist you. You are also directed to contact the KSU Helpdesk 24/7. As a last resort, contact me. However, do not expect an immediate reply, and I cannot guarantee that I will be able to help with any and all technology issues.
- B. When posting or sending email requesting help with technology issues, whether to the Helpdesk or me, use the following guidelines:
1. Include a descriptive title for the subject field that includes 1) the name of course 2) the issue. Do NOT just simply type “Help” into the subject field or leave it blank.
 2. List the steps or describe the circumstance that preceded the technical issue or error. Include the exact wording of the error message.
 3. When possible, always include a screenshot(s) demonstrating the technical issue or error message.
 4. Also include what you have already tried to do to remedy the issue (rebooting, trying a different browser, etc.).

Policies and Expectations

Online Attendance Policy

Online courses are conducted on the premise that regular attendance requires students to log into the Bb Learn learning management system (LMS). Attendance is measured both by virtual presence in the online course and student interaction with course learning materials and assignments. Students are expected to check their Kent State e-mail and to log into the system multiple times (at least every other day) during the week.

All actions by students in the Bb Learn LMS can be tracked. At any time during the course, an instructor may generate a report that indicates when and how long individual students have been logged into the LMS, or engaged with course materials or course tools.

Students who anticipate an absence from the online course due to technical or medical reasons should consult with the instructor individually. An absence due to illness or injury requires verification from a medical professional and should be presented to the instructor.

Communication Policy

1. Email course questions and personal concerns, including grading questions, to me privately using your @kent.edu email.
2. Email will be checked at least twice per day Monday through Friday; Saturday and Sunday, email is checked once per day. During the week, I will respond to all emails within 24 hours; on weekends and holidays, allow up to 48 hours. If there are special circumstances that will delay my response, I will make an announcement to the class.
3. For questions related to technology, please contact: 330-672-HELP for 24/7 support.
4. The subject of your email should include (CS 4/55203 or Computer Network Security) because I am teaching more than one course. Note: if you use Blackboard to send the email it will automatically include this information for you.

Online Student Conduct and (N)etiquette

Communicating appropriately in the online classroom can be challenging. In order to minimize this challenge, it is important to remember several points of “internet etiquette” that will smooth communication for both students and instructors:

1. **Read first, Write later.** Read the *entire* set of posts/comments on a discussion board before posting your reply, in order to prevent repeating commentary or asking questions that have already been answered.
2. **Avoid language that may come across as strong or offensive.** Language can be easily misinterpreted in written electronic communication. Review email and discussion board posts BEFORE submitting. Humor and sarcasm may be easily misinterpreted by your reader(s). Try to be as matter-of-fact and professional as possible.
3. **Follow the language rules of the Internet.** Do not write using all capital letters, because it will appear as shouting. Also, the use of emoticons can be helpful when used to convey nonverbal feelings. 😊
4. **Consider the privacy of others.** Ask permission prior to giving out a classmate's email address or other information.

5. **Keep attachments small.** If it is necessary to send pictures, change the size to an acceptable 250kb or less (there are several programs you can use to do this such as: Photoshop, Paint, GIMP, and picesize.com).
6. **No inappropriate material.** Do not forward virus warnings, chain letters, jokes, etc. to classmates or instructors. The sharing of pornographic material is forbidden.

NOTE: *The instructor reserves the right to remove posts that are not collegial in nature and/or do not meet the Online Student Conduct and Etiquette guidelines listed above.*

University Use of Electronic Email

A university-assigned student e-mail account is the official university means of communication with all students at Kent State University. Students are responsible for all information sent to them via their university-assigned e-mail account. If a student chooses to forward information in their university e-mail account, he or she is responsible for all information, including attachments, sent to any other e-mail account. To stay current with university information, students are expected to check their official university e-mail account and other electronic communications on a frequent and consistent basis. Recognizing that some communications may be time-critical, the university recommends that electronic communications be checked minimally twice a week.

Assignments and Grades

A detailed breakdown of course assignments and due dates by lesson module is available as a separate .pdf document that can be accessed in Bb Learn by clicking on the **Syllabus & Course Schedule** link in the course menu.

Assignments

All assignments should be submitted using the following guidelines:

- Submit a Microsoft Word (.doc/.docx) document as an attachment using the associated assignment tool within the course
- Be sure to include your name in the text of the document as well as in the file name. Name your assignment using the following naming convention:
 - Firstname Lastname_AssignmentName
- You can only submit once, so make sure you are completely finished before submitting and that you attach the correct file.
- Submissions sent by email will NOT be accepted.

Discussion Boards

Discussions are an integral part of this course and should be viewed an opportunity for engaging with your peers. When participating in each modules' discussion forum, please adhere to the following:

- Provide a complete and detailed response to each module's discussion prompt.
- Respond to at least one classmate's post. Provide a substantive response that asks a question or attempts to further the conversation.

Check Your Understanding Quizzes

Each module will include a short quiz comprised of 15 to 30 multiple choice questions pertaining to information derived from that module's lectures. You may take each quiz as many times as you would like prior to the due date. The score from the most recent attempt will be retained.

Rubrics

A grading rubric is a list of specific and measurable criteria for evaluating course work. Grading rubrics should be viewed prior to beginning work on a graded discussion or assignment, to help guide the successful completion of the task, and again once a grade has been posted to view instructor feedback.

To view grading rubric for instructor feedback on scored assignments, click on the link to **My Grades** located in the main navigation sidebar in your Bb Learn course. On the My Grades page, a link to "View Rubric" appears below the score in the **Grade** column.

Late and Make-up Work Policy

Late work will not be accepted.

Grading and Feedback

To view grades on scored assignments, click on the link to My Grades located in the main navigation sidebar in your course. In most cases, assignments will be graded within one week of their due date.

Assignment Distribution and Grading Scale

Method of Assessment	Percentage of Overall Grade [Undergraduates]	Percentage of Overall Grade [Graduates]
Discussions	10%	5%
Check Your Understanding Quizzes	10%	10%
Assignments	20%	20%
Labs	30%	30%
Project (Initial Proposal, Finalized Proposal, Final Report, Project Presentation [Graduate Students Only])	30%	35%

You can calculate your weighted average grade at any time during the course by using one of the following online tools listed below:

- [Blacks Domain Weighted Average Grade Calculator](#)
- [Mercer University Weighted Average Grade Calculator](#)

Percentage Earned	Grade
93% - 100%	A
90% - less than 93%	A-
87% - less than 90%	B+
83% - less than 87%	B
80% - less than 84%	B-
77% - less than 80%	C+
73% - less than 77%	C
70% - less than 74%	C-
67% - less than 70%	D+
60% - less than 67%	D
Under 60%	F

University Policies

Students are required to be aware of and follow all general and academic policies established by Kent State University. A list of the general academic policies is listed on the Kent State University Policy Register, which can be found in the University policies section of the Getting Started in Your Online Course link within the Start Here folder. Specific policies related to the successful completion of this online course can be located and reviewed in your Blackboard Learn course.

University policies are located in the University policies section of the Getting Started in Your Online Course link within the Start Here folder in your Blackboard Learn course.

Students with Disabilities

University policy 3342-3-01.3 requires that students with disabilities be provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact the instructor at the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for these through Student Accessibility Services (contact 330-672-3391 or visit www.kent.edu/sas for more information on registration procedures).

The Blackboard accessibility statement can be found in the University policies section of the Getting Started in Your Online Course link within the Start Here folder.

Course Enrollment and Withdrawal

University policy requires all students to be officially registered in each class they are attending. Students who are not officially registered for a course by published deadlines should not be attending classes and will not receive credit or a grade for the course. Each student must confirm enrollment by checking his/her class schedule (using Student Tools in FlashLine) prior to the deadline indicated.

If registration errors are not corrected by this date and you continue to attend and participate in classes for which you are not officially enrolled, you are advised now that you will not receive a grade at the conclusion of the semester for any class in which you are not properly registered. Also, it is your responsibility to check the withdrawal dates for each semester.

Every class has its own schedule of deadlines and considerations. To view the add/drop schedule and other important dates for this class, go to Student > Resources > Courses and Registration in FlashLine. Choose View or Print Course Schedule and Purchase Textbooks. To see the deadlines for this course, click on the CRN. The add/drop schedule and important dates may also be found on the Drop or Add a Course link. Click on the green clock next to the course under Registration Deadlines.

Plagiarism and Academic Integrity

Students enrolled in the university, at all its campuses, are to perform their academic work according to standards set by faculty members, departments, schools and colleges of the university; and cheating and plagiarism constitute fraudulent misrepresentation for which no credit can be given and for which appropriate sanctions are warranted and will be applied.

For more information see the Kent State policy on plagiarism in the University policies section of the Getting Started in Your Online Course link within the Start Here folder.

Subject to Change Statement

The syllabus and course schedule may be subject to change. Changes will be communicated via email or the Blackboard Learn announcement tool. It is the responsibility of students to check email messages and course announcements to stay current in their online courses.