IT/CYBR 4333 Network Configuration and Administration
**(See the separate schedule for assignment due dates and recommended activities)**

## Contact Information

**Instructor:**Hossain Shahriar, Ph.D., J336, hshahria@kennesaw.edu

**Phone:**IT Department: 470-578-3803 Instructor: 470-578-3866
Note: I seldom check phone messages in a timely manner; best method of communication is via discussion posts for questions that others may have an interest in, or by email if personal or confidential. I will communicate with the class via the course D2L discussion forum.
I will do my best to respond to emails and discussion posts within 2 business days.
Official communications should be conducted between KSU email accounts in accordance with KSU Policy.

**Office Hours:***Virtual and by Email*- face to face appointments are scheduled only after all other attempts to resolve the issue have been exhausted.

**Advising:**All advising questions should be directed to the [Cybersecurity Institute eMajor Advising office](http://cyberinstitute.kennesaw.edu/academics/Advising.php).

## Description

This course continues the study of networks. Topics include design and implementation of networks including synchronization, scheduling, exception and deadlock resolution, client server and web based collaborative systems. Network security will also be covered. Cost estimates and speed are examined from a management perspective

### Prerequisites

C or better grade in CYBR 4323 or IT 4323.

## Materials/Textbook

No textbook will be required. Learning material will be provided in D2L course management site.

Optional textbook: Network Management Fundamentals; Author: Alexander Clemm, Cisco Press, 2007, ISBN-13: 978-1-58720-137-0

### Technology Requirement

Students enrolled in this class are expected to have a highly functional level of technology literacy. Students should be able to upload, download, and modify files, including office documents, spreadsheets, PDFs, and presentation technologies as presented in this class. You may be expected to create a computer-based presentation (slides plus your recorded voice) during this course. While free software is suggested, you may use alternate applications. You are expected to become VERY familiar with Brightspace [a.k.a. Desire2Learn or D2L] especially posting and reading discussion forums and uploading assignments.

Students will be required to install Linux in Virtual box/VM Workstation and some assignments will require accessing Netlab environment. More information will be provide in D2L module content.

Technology support for KSU systems including D2L is available by emailing  studenthelpdesk@kennesaw.edu or calling 770-499-3555. Please do not email D2L problems to your instructor.

**Course Coordinator*:***Dr. Hossain Shahriar (hshahria@kennesaw.edu)

**BS-CYBR Director:** Dr. Herb Mattord (hmattord@kennesaw.edu)

**Advising:** All CYBR advising is conducted through the ICWD advising office, Ms. Kelly Price (kgermain@kennesaw.edu) and Ms. Stacy Schulte (sschutt2@kennesaw.edu); Ph. 470-578-3592) 3203 Campus Loop Road, Room 203. Advising appointments by phone or email.

## Course Learning Objectives

Upon completion of this course, the student should be able to:

1. Demonstrate how to manage network systems;
2. Apply the various management strategies to managing networks;
3. Describe concepts of network configuration management;
4. Demonstrate skills in configuring specialized network security software

## Assignments

Table 1: Assignments

| Topic | Weight | Notes |
| --- | --- | --- |
| Assignments | 65% | There will be 9 assignments. As part of the assignments, students access/install specific software and tools on computers per instructions and complete hands-on activities. Brief outlines of the assignments are below.Asg1- this assignment asks to identify open ports running TCP/UPD protocol, explain function of DNS protocols. Asg2 – this assignment will run commands to save and restore network configurations. Asg3 - this assignment compares performance of pure hub LAN with switched LAN.Asg4 - this assignment captures network traffic and analyze them in Wireshark. Asg5 - this assignment builds virtual networks using NetKit and monitor ARP traffic.Asg6 - this assignment will use Netlab environment to monitor network from a given host computer.Asg7 - this assignment will use Netlab environment to examine network firewall and security configuration from windows/linux server.Asg8 - this assignment will use Netlab to troubleshoot network environment.Asg9 - this assignment analyzes HTTP, FTP, and Modbus packets with Wireshark. |
| Discussions | 10% | There are 2 discussions. Discussion1 – this online activity will ask students to analyze the benefits and techniques of network management and becoming familiar with D2L environment. Discussion2 – this online activity will ask students to review the network security issues and impact. |
| Research paper  | 25% | Research paper will cover in depth of one relevant topic for research and paper writing; it can be done in group of 3-4 members; topics will be provided by the instructor.   |

The instructor will make every effort to have assessed items (labs/project report/final exams) graded within 1 week. Email the instructor if you have any question.

**The instructor will provide feedback after the submission of each assignment and term research paper.**

End of term grade evaluation is on a standard scale: A 89.5% - 100% B 79.5% - 89.49% C 69.5% - 79.49% D 59.5% - 69.49% F 59.49% or below.

The grading rubric will be provided in the corresponding assessed items.

## Course Schedule

|  |  |  |
| --- | --- | --- |
| **Week** | **Topic** | **Assessment** |
| 1 | M1: Network management: benefit and architecture | Discussion#1 |
| 2 | M2: Network management protocol, SNMP | Asg1 |
| 3 | M3: Network management toolM12: Research paper – topic, group formation | Asg2 |
| 4 | M4: Network traffic monitoring and analysis**Last day to withdraw without penalty** | Asg3 |
| 5 | M5: Network packet analysis | Asg4, Research paper: initial report |
| 6 | M6: Network management and routing | Asg5 |
| 7 | M7: Introduction to Netlab and Mininet | Asg6 (Netlab-network management) |
| 8 | M8: Network attack and detection | Asg7 (Netlab-firewall security), Discussion#2 |
| 9 | M9: SCADA |  |
| 10 | M9: DNS | Asg8 (Netlab-DNS) |
| 11 | M10: SNMP and router | Research paper: intermediate report |
| 12 | M11: Service management | Asg9 |
| 13 | Research paper- presentation |  |
| 14 | Research paper- presentation | Research paper: final report |
| 15 | Fall Break |  |
| 16 | Review |  |

## Course Policies

### CRITICAL POLICIES:

1. **LATE WORK WILL NOT BE ACCEPTED Unless prior permission from the instructor**
2. **DO NOT EMAIL ANY ASSIGNMENT TO THE INSTRUCTOR**
3. **ALL ASSIGNMENTS MUST BE UPLOADED TO D2L**
4. **USE D2L EMAIL WHEN EMAILING THE INSTRUCTOR, , ONLY YOUR KSU ACCOUNT when emergency**
5. **POST CLASS QUESTIONS TO D2L DISCUSSION BOARDS to discuss with your other class members, but the discussion boards are not monitored or proctored by the instructor; if you have question for the instructor, do not post into discussion board, contact the instructor via EMAIL**

### Other Course Policies:

####  Resources:

* [KSU Center for InfoSec Education Resource Page](http://infosec.kennesaw.edu/resources.html)
* [The Computer Security Resource Center at the National Institute of Standards and Technology](http://www.csrc.nist.gov/)
* [The SANS Institute](http://www.sans.org) (System and Network Security), [Information Security Magazine](http://www.infosecuritymag.com/)
* [Carnegie Mellon SEI CERT/CC](http://www.cert.org) at http://www.cert.org
* [ACM Special Interest Group on Security, Audit and Control](http://www.acm.org/sigsac/)

**Accessibility Compliance Statements:** Where available, ADA policies are provided.  Where not specified or available, I will gladly work with the Department of Student Disability Services to provide reasonable accommodation for students with documented issues

* [University System of Georgia: Higher Education, the American s with Disabilities Act and Section 508](http://www.usg.edu/siteinfo/higher_education_the_americans_with_disabilities_act_and_section_508).
* [USG Web Accessibility](http://www.usg.edu/siteinfo/accessibility)
* [KSU Accessbility Policy](http://accessibility.kennesaw.edu/)
* [Microsoft accessibility Statement](https://www.microsoft.com/en-us/accessibility/accessibility-conformance-reports) (including Office)
* [Desire 2 Learn Accessibility Statement](https://www.d2l.com/accessibility/) (D2L):
* [Kaltura](https://corp.kaltura.com/products/core-platform/video-accessibility) (a.k.a. MediaSpace - KSU's video server platform
* [Adobe Acrobat Accessibility Statement](http://www.adobe.com/accessibility.html) (PDF Reader)
* [Accessibility Policies for Netlab](https://www.netdevgroup.com/products/agreement)
* [Accessibility policy for Collaborate Ultra](https://help.blackboard.com/Learn/Instructor/Interact/Blackboard_Collaborate/Accessibility_in_Blackboard_Collaborate)

Privacy Compliance Statements: Where available, privacy policies are provided. Where not specified or available, I will gladly work with the student and appropriate university agency to ensure appropriate protections.

* [USG Web Privacy Policy](http://www.usg.edu/siteinfo/web_privacy_policy)
* [Microsoft Privacy Policy](https://privacy.microsoft.com/en-us/privacystatement)
* [Desire 2 Learn Privacy Policy](https://www.d2l.com/legal/privacy/)
* Kaltura Privacy Policy (a.k.a. MediaSpace - KSU's video server platform): https://corp.kaltura.com/privacy-policy
* Adobe Acrobat (PDF Reader): http://www.adobe.com/privacy.html Compliance Shield: https://informationshield.com/privacy-policy

Additional supplemental resources will be provided by the instructor.

## Schedule

Refer to the Schedule in D2L for the course calendar and assignment key dates.

### Online Learning:

Student attending this class should realize the nature of the course they are enrolled in. This is a completely online class. There will be NO face-to-face interactions expected of between the students and the instructor. Students are always encouraged to interact with the instructor via discussion posts for topics of interest to the entire class or email for items that are personal or confidential. Students will also interact with each other virtually, through online discussions in D2L, and through assignments. In order to ensure the student does not fall behind it is STRONGLY encouraged that students keep to the schedule suggested in this syllabus in the Schedule section below. Some classes have periodic reporting requirements, while others do not. If this class does not, the student should make a concerted effort to maintain currency and not wait until the last minute to complete assignments. Every reasonable effort is being made to facilitate quality learning in this online format.

In the absence of face-to-face direct interaction, Student - Instructor interaction will be enhanced by a number of mechanisms:

* Students are listening to recorded lectures by the instructor.
* Students can listen to recorded course introductions by the instructor
* Students can listen to a recorded self-introduction by the instructor - under Course Overview and Introductions - About Dr. Shahriar.
* Students should post actual photos of themselves into D2L (not avatar photos) to allow facial recognition of peers and by faculty members.
* Students and the instructor will interact by email as needed - feel free to email - I will respond as quickly as possible - typically next business day, sometime within a few hours.
* The instructor will interact with students in discussion postings as needed as student post questions or concerns, the instructor will respond and interact as appropriate.
* The instructor will grade assignment inserting written comments as appropriate.
* If (and only if) the instructor is unable to answer student questions by email, students may schedule physical appointments. However, this should only be done when other communications fail to resolve the student's issue. Pleading one's case in public does not improve the chances the instructor will change his mind on an issue.
* Student to Student interaction is highly encouraged and will be accomplished through the discussion postings, email, and ad-hoc chat interactions.
* Students should post general class questions in the appropriate discussion area of D2L, and only email personal/confidential questions to the instructor.

KSU has a variety of support services to facilitate student learning and engagement.  These resources will include descriptions of student services and resources, including how learners can use them to succeed and how learners can obtain them:

* [Student Success Services department](http://studentsuccess.kennesaw.edu/)
* [Department of Student Engagement](http://studentengagement.kennesaw.edu/)
* [Department of Student Life](http://studentlife.kennesaw.edu/)
* [Writing center](http://writingcenter.kennesaw.edu/)
* [KSU Library](http://library.kennesaw.edu/)
* [Distance Learning Center](http://distancelearning.kennesaw.edu/a%3E)
* [UITS Student Training](http://uits.kennesaw.edu/support/training.php) (OwlTrain)
* [College Undergraduate Advising Services](http://coles.kennesaw.edu/programs/undergraduate/academic-advising.php)
* [Graduate University Student Services](http://graduate.kennesaw.edu/students/)
* [Undergraduate Student Government](http://sga.kennesaw.edu/)
* [Graduate Student Association](http://graduate.kennesaw.edu/students/gsa.php)

Technology Expectations: Students enrolled in this class are expected to have a highly functional level of technology literacy. You are after all enrolled in a technology course. Students should be able to upload, download, and modify files, including office documents, spreadsheets, PDFs, and presentation technologies as presented in this class. You may be expected to create a computer-based presentation (slides plus your recorded voice) during this course. While free software is suggested, you may use alternate applications. You are expected to become VERY familiar with Desire2Learn (D2L), especially the posting on and reading the discussion forums, and uploading assignments.

Technology support for KSU systems including D2L is available by emailing studenthelpdesk@kennesaw.edu or calling 770-499-3555. Please do not email D2L problems to your instructor. There are periods of scheduled maintenance for this system, as well as the possibility of periodic 'unscheduled outages'. It is up to the student to plan their schedules to provide sufficient time to deal with these outages.

The preferred mode of communications with the instructor is via discussion postings in D2L for all topics suitable for public discussion (anything you would typically feel comfortable raising your hand and asking in a physical class) and email for personal or confidential issues. While other email access may be available, only emails from your kennesaw.edu accounts, with the course number in the subject are guaranteed responses. The instructor will endeavor to respond to email questions within 2 business days, sooner if at all possible.

### Minimum Technology Requirements:

In order to complete this course the student must have access to the following technologies:

* A computing device - desktop, laptop, tablet or smart phone capable of:
	+ accessing Internet-based content
	+ displaying recorded video
	+ playing recorded audio - with speakers or headphones
	+ recording audio - with microphone or headset
	+ capturing your image and actions during exams - with a web camera (see RLDB & Respondus Monitor)
* Internet access of sufficient speed to download/display recorded lectures
* Free or trial software capable of creating slide + audio presentations
* Standard office productivity applications similar to MS Word, Excel & PowerPoint, and Adobe Reader
* A printer (for printing course calendar, etc.)

### Academic Integrity Statement:

Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section II of the Student Code of Conduct addresses the University's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards.

Incidents of alleged academic misconduct will be handled through the established procedures of the University Judiciary Program, which includes either an "informal" resolution by a faculty member - resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimum one semester suspension requirement. Students are encouraged to study together and to work together on non-exam class assignments and lab exercises; however, the provisions of the STUDENT CONDUCT REGULATIONS, II. Academic Honesty, KSU Undergraduate Catalog will be strictly enforced in this class.

***Students caught violating the KSU policy on Academic Integrity in this courses will be subject to the following:***

First the instructor will query the KSU SCAI office to determine if the student has a prior SCAI violation.  if the student does, the entire case will automatically be deferred to the SCAI office for processing.

If not, the student will then be notified by KSU email as to the potential or alleged violations of KSU SCAI policy. If the instructor feels the evidence is sufficient, they will also include an informal penalty. Students have 2 business days (48 hours) to respond to the instructor, providing any information or justification for their actions. They will also indicate whether they a) acknowledge their responsibility and fault in the allegations and accept the offered informal penalty or b) refute any allegations, or deny responsibility, and request a formal hearing by the KSU SCAI office. Failure to respond within this period will be viewed as a default admission of guilt of any alleged violations, and the case referred to SCAI for a hearing.

***For a first offense (in this course) a 0 (zero) on the assignment in question, and up to an "F" for the course, at the discretion of the instructor.
For a second offence (in this course) an “F” will be assigned for the course, at the discretion of the instructor.
All documented Academic Integrity violations WILL BE reported to the KSU Student Conduct and Academic Integrity Office for filing.***

Students accepting the informal resolution MUST remain in the course for the duration of the term. Students charged with SCAI violations who subsequently drop the course will automatically be referred to the SCAI office, without further discussion, even if the student has accepted the informal resolution.   Any student referred to the SCAI office for formal review will be subject to SCAI hearings and possibly a mandatory 1-semester suspension on 1st offense or 1-year suspension on 2nd offense.

All assignments, exams, projects, papers, etc., must be the original work of the student. Original work may include the thoughts and words of others, but such thoughts or words must be identified using quotation marks or indentation and must properly identify the source. At all times, students are expected to comply with the department's accepted citation practice and policy. The University and its faculty are committed to maintaining high standards of academic integrity. Student work will be routinely submitted to plagiarism detection tools (such as the TurnItIn module in D2L) for review.

Work is not original when it has been submitted previously by the author or by anyone else for academic credit. Work is not original when it has been copied or partially copied from any other source, including another student, unless such copying is acknowledged by the person submitting the work for credit at the time the work is being submitted, or unless copying, sharing, or joint authorship is an express part of the assignment. Exams and tests are original work when no unauthorized aid is given, received, or used before or during the course of the examination, reexamination, or remediation.

***In accordance with KSU Policy:***

“Engaging in any behavior which a professor prohibits as academic misconduct in the syllabus or in class discussion is cheating. When direct quotations are used, they should be indicated, and when the ideas, theories, data, figures, graphs, programs, electronic based information or illustrations of someone other than the student are incorporated into a paper or used in a project, they should be duly acknowledged. No student may submit the same, or substantially the same, paper or other assignment for credit in more than one class without the prior permission of the current professor(s).”

This request MUST be in writing (KSU email is acceptable).  This also includes work performed in a previous semester for the same course (e.g. retake of an IS/ISA class).

See the complete [SCAI policy](https://web.kennesaw.edu/scai/content/ksu-student-code-conduct), from which this information was copied and/or adapted.

### Use of Paraphrasing Tools:

Recently students have begun using online paraphrasing tools in an effort to avoid TII issues.  If a student were to use these tools to rewrite his or her own original content, and then clean up the grammar and readability afterwards, it might be acceptable, but only if discussed thoroughly with the instructor prior to doing so. What is not acceptable, and considered plagiary and cheating, is the process of cutting and pasting a direct quote from an outside source into a paraphrase tool and then including it in a written assignment, even with a citation. You must read all original content and rewrite in your own words to be considered acceptable paraphrasing or summarization.

In order to avoid any confusing or ambiguity in the use of these tools, the use of all such tools is hereby prohibited in this course.  Any student caught using a paraphrase tool on an assignment will have their assignment treated like any other plagiarized submission, and thus will be subject to SCAI procedures.

### TurnItIn & D2L:

Any written assignments (including essay questions for the exams) assigned in the course will be evaluated by D2L’s TurnItIn (TII) module. Students will have access to the similarity report and can update their report before submission deadline.

* As a general rule, ***ignore the originality score***, from reference section or coming from your past submitted report into D2L.
* Similarity score > 20% will lead to zero into any assignment. For group project, all members will receive zero.

### Respondus Lock Down Browser (RLDB) & the Respondus Monitor:

This course will not require the use of LockDown Browser and a webcam and microphone for online quizzes and exams.

## Exams

As stated, final exam is open book but timed. Students will get one attempt to complete the exam.

### Interaction Expectations and Response Requirements:

It is strongly encouraged that students engage their peers through the forums and through direct email.  Increased student-to-student interaction has been shown to enhance learning.  As per the course policies, students are expected to post questions of a non-personal/confidential nature on the D2L forum site, and email the instructor with personal/confidential questions as needed. The instructor strongly encourages students to ask questions when faced with challenges, but only after the student has attempted to resolve the issue on their own.  The instructor WILL answer your questions to the best of their ability, but EXPECTS that you will have made a reasonable effort to find the answer on your own, before contacting them.

Students are expected to respond to emails sent to their KSU email accounts within 2 business days, the same response standard students should expect when emailing the instructor.

The instructor is expected to grade and respond to labs/exams within 1 week, excluding holidays.

See the section on SCAI for communications requirements when a SCAI violation is suspected.

### Lectures:

Class lectures can be accessed directly through the course D2L site. Lecture resources and notes are also available for download through D2L.

### End of Term Instructor Assessment:

At the end of the term, students will receive an email inviting you to complete a survey of your perception of the online learning experience. This survey is anonymous and students are strongly encouraged to complete it.  The instructor will post a notice in the classroom announcement area when the survey is available.

### Diversity and Disability Statement:

All courses offered by the Information Systems department will adhere to the KSU policy that prohibits discrimination on the basis of race, religion, color, sex, age, disability, national origin, or sexual orientation.

NOTE: IF YOU HAVE AN ADA ISSUE THAT RESULTS IN DIFFICULTY IN VIEWING OR LISTENING TO MATERIAL IN THIS COURSE, PLEASE NOTIFY YOUR INSTRUCTOR IMMEDIATELY. ALTERNATE DELIVERY MECHANISMS CAN BE ARRANGED IF COORDINATED THROUGH THE STUDENT DISABILITY SERVICES OFFICE. Phone: (470) 578-2666 Email:  sds@kennesaw.edu.

### Grading Rubrics:

D2L provides a mechanism for the instructor to use a grading rubric (evaluation grid) to facilitate grading of assignments.  To view these rubrics, click the "Other" tab within D2L and select "Rubrics." The instructor reserves the right to modify these rubrics up to the start of grading to best suit the needs of the course.

### Withdrawal Policy:

The last day to withdraw without academic penalty is listed in the schedule of activities. Ceasing to attend class or oral or email notice thereof DOES NOT constitute official withdrawal from the course. Students who simply stop attending classes without officially withdrawing usually are assigned failing grades. Students wishing to withdraw after the scheduled change period (add/drop) must obtain and complete a withdrawal form from the Academic Services Department in the Registrar's Office.

### Enrollment Policy:

Only those students who are enrolled in the class may attend lectures, receive assignments, take quizzes and exams, and receive a grade in the class. If a student is administratively withdrawn from this course, they will not be permitted to attend class nor will they receive any grade for the class.

### Email Policy:

The instructor only guarantees replies to emails received from your Kennesaw email account (netid@students.kennesaw.edu). Emails sent from other email domains may not reach the instructor's mailbox. In order to ensure receipt/responses to your email be sure that you communicate with the instructor via your Kennesaw email account or via D2L, and include the course number in the subject. Please refer to my email etiquette policy in D2L and the document To: Professor@University.Edu.

### Online Behavior:

Please review the document titled Course Netiquette before engaging your instructor or peers online. Students are reminded to conduct themselves in accordance with the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Every KSU student is responsible for upholding these provisions. For more details, please read the [Kennesaw State University Student Codes of Conduct](http://scai.kennesaw.edu/KSU%20Codes%20of%20Conduct%202016-2017%20edits.pdf).Students who are in violation of this policy may be subject to disciplinary action by the University.

### Acquiring Final Grades:

The final grades for this course will be posted to the student's permanent record using the KSU OwlExpress System.  Students may acquire their final grades by accessing their account online through Owl Express. All grades reflected are those submitted by the faculty members at the time of posting. Students needing verification of grades or enrollment should request either an official transcript or enrollment verification through the Office of the Registrar.

## Syllabus Modification

***The instructor reserves the right to modify the syllabus or course schedule at any time during the semester, in order to best meet the objectives of the course. Any changes in assignments or due dates will be announced in a posting in the D2L Discussion area.***

NOTE TO INSTRUCTORS ON ACCESSIBILITY:

Even though Word reports no accessibility issues in this document, if you want to save as PDF and upload a PDF instead of a Word document to D2L, you’ll also have to run the accessibility checker in Adobe, then “fix” the following issues:

* 1. Logical Reading Order – if your pages are in the right order, just right click this and select “Pass”
	2. Title – right click and select “Fix” should change to “passed”
	3. Color contrast – right click and select “Pass”
	4. Headings – open the “Tags” window then select the header associated with the title screen (most likely H2) – then select “properties” and change to “H1” all other headers will increment and the error should go away.