Online Course Syllabus

Course Information
Course Number/Section   MIS 6316.0W1
Course Title   Data Communications
Term   Fall 2016 (Aug 22 – Dec 22)

Professor Contact Information
Professor   Syam Menon
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Course Pre-requisites, Co-requisites, and/or Other Restrictions
There are no pre-requisites for this class.

Course Description
Advances in networking and communication technologies have made the network inseparable from the computers it links together. Information Systems managers need to have an in-depth understanding of a multitude of issues related to data communications ranging from the technical to the managerial in order to make educated decisions regarding them. This course is an introduction to the basic concepts underlying voice/data communications, local area networks, wide area networks, and the Internet. It is intended to make you aware of various data communications technologies, and to enable you to make informed decisions regarding them.

Student Learning Objectives/Outcomes
- **Module I: FUNDAMENTALS OF COMMUNICATIONS**
    - **Lecture 1:**
        - Describe the layers of the important network models
        - Explain the need for standards, and the process of standardization
    - **Lecture 2**
        - Describe the fundamentals of transmission, including the types of signaling and transmission, signal impairments.
        - Calculate channel capacity in noiseless and noisy channels.
    - **Lecture 3**
        - Describe and classify different types of transmission media.
        - Describe wireless transmission and propagation.
    - **Lecture 4**
        - Identify and describe different types of signal encoding schemes.
    - **Lecture 5**
        - Explain different processes of transmission, error detection, and flow control.
        - Analyze the efficiency of transmission.

- **Module II: SWITCHING & NETWORKING**
    - **Lecture 6**
        - Explain various forms of multiplexing and switching.
        - Analyze the effect of packet size on transmission time.
    - **Lecture 7**
        - Describe and analyze routing in circuit and packet switched networks.

- Identify least cost routes using Dijkstra's algorithm.
  - **Lecture 8**
    - Describe and classify LANS.
    - Describe LAN components.
    - Explain the functioning of various types of technologies related to LANs.
  - **Lecture 9**
    - Describe various cellular concepts and technologies.

- **Module III: SECURITY**
  - **Lecture 10**
    - Describe various threats, and the major requirements to ensure security.
    - Describe and analyze symmetric and public-key encryption schemes, and related operations.

Required Textbooks and Materials

Required Texts

- Business Data Communications by W. Stallings and T. Case, Seventh Edition 2012, Prentice Hall, ISBN-10: 0133023893; ISBN-13: 9780133023893.

Textbooks and some other bookstore materials can be ordered online through Off-Campus Books http://www.offcampusbooks.com or the UT Dallas Bookstore http://www.bkstr.com/texasatdallasstore/home. They are also available in stock at both bookstores.

Technical Requirements

In addition to a confident level of computer and Internet literacy, certain minimum technical requirements must be met to enable a successful learning experience. Please review the important technical requirements http://www.utdallas.edu/elearning/students/getting-started.html#techreqs on the Getting Started with eLearning webpage http://www.utdallas.edu/elearning/students/getting-started.html.

Course Access and Navigation

The course can be accessed using the UT Dallas NetID account at: https://elearning.utdallas.edu. Please see the course access and navigation http://www.utdallas.edu/elearning/students/getting-started.html#courseaccessandnav section of the site for more information.

To become familiar with the eLearning tool, please see the Student eLearning Tutorials http://www.utdallas.edu/elearning/students/eLearningTutorialsStudents.html.
UT Dallas provides eLearning technical support 24 hours a day/7 days a week. The eLearning Support Center http://www.utdallas.edu/elearninghelp services include a toll free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service.

Communication

This course utilizes online tools for interaction and communication. Some external communication tools such as regular email and a web conferencing tool may also be used during the semester. For more details, please visit the eLearning Tutorials webpage http://www.utdallas.edu/elearning/students/eLearningTutorialsStudents.html for video demonstrations on eLearning tools.

Student emails and discussion board messages will be answered within 3 working days under normal circumstances.

Distance Learning Student Resources

Online students have access to resources including the McDermott Library, Academic Advising, The Office of Student AccessAbility, and many others. Please see the eLearning Current Students page http://www.utdallas.edu/elearning/students/cstudents.htm for details.

Server Unavailability or Other Technical Difficulties

The University is committed to providing a reliable learning management system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and also contact the online eLearning Help Desk http://www.utdallas.edu/elearninghelp. The instructor and the eLearning Help Desk will work with the student to resolve any issues at the earliest possible time.

Assignments & Academic Calendar

WEEK	DATES	TOPIC/LECTURE	READING	ASSIGNMENTS
0	22Aug2016 - 28Aug2016	Course Access; Self-Orientation		
MODULE I : FUNDAMENTALS OF COMMUNICATIONS				
1	29Aug2016 – 04Sep2016	Introduction; History; Network Models	Lecture 01 PPT C4.1, C4.3 (Internet Names & Addresses), C5.2 (TCP/IP Layers), C5.4	
2	05Sep2016 – 11Sep2016	Transmission Fundamentals	Lecture 02 PPT C15	**05Sep2016: HW 1 assigned**
3	12Sep2016 – 18Sep2016	Transmission Media	Lecture 03 PPT C9.3, C14Intro, C14.4	**12Sep2016: HW 1 Due**

4	19Sep2016 – 25Sep2016	Encoding Signals	Lecture 04 PPT C16.1, C16.2	**19Sep2016: HW 2 assigned**
5	26Sep2016 – 02Oct2016	Transmission, Error Detection & Flow Control	Lecture 05 PPT C16.3, 16.4, C17.1, C17.2	**26Sep2016: HW 2 due**
6	03Oct2016 – 09Oct2016	Transmission, Error Detection & Flow Control	Lecture 05 PPT C16.3, 16.4, 17.1, 17.2	**03Oct2016: Term Paper Proposal due**
Week 7: ONLINE EXAMINATION: 14Oct2016 – 16Oct2016
MODULE II : SWITCHING & NETWORKING
8	17Oct2016 – 23Oct2016	Multiplexing & Switching	Lecture 06 PPT C17.3, C17.4, C17.5, C12	**17Oct2016: HW 3 assigned**
9	24Oct2016 – 30Oct2016	Multiplexing & Switching	Lecture 06 PPT C17.3, C17.4, C17.5, C12	
10	31Oct2016 – 06Nov2016	Routing	Lecture 07 PPT	**31Oct2016: HW 3 due HW 4 assigned**
11	07Nov2016 – 13Nov2016	LANS and Backbones	Lecture 08 PPT C9, C10, C11, (only parts covered by PPT)	**07Nov2016: HW 4 due**
12	14Nov2016 – 20Nov2016	Wireless Networks	Lecture 09 PPT C14	
MODULE III : SECURITY
13	21Nov2016 – 27Nov2016	Network Security	Lecture 10 PPT C18	**21Nov2016: HW 5 assigned**
14	28Nov2016 – 29Nov2016	Free for Self-Review		**21Nov2016: HW 5 due Term Paper due**
EXAMINATION
15	**30Nov2016 –05Dec2016**		**Proctored Exams via UTD Testing Center or Approved Testing Service All completed exams must be received by 12:00 NOON CT on Monday, December 05, 2016**

Proctored Final Exam Procedures
This course requires a proctored final examination.
Please see the Student Success Center Proctored Exam website

to make
arrangements.

The exam must be taken during this testing window: **November 30, 2016 – December 05, 2016.**
Please see the **UTD Student Success Center Website** for more information. In particular, please
see the **Student Success Center Proctored Exam website** to make arrangements.

Local students can take their exams on-campus at the **UTD Student Success Center**. Students
who find UTD geographically inconvenient may use a testing service of their choice at a
convenient location to have the exam proctored. Please go to the **Proctored Exam Information**
page to find detailed information on arranging a proctored exam. Please note students are
responsible for any fee charge of their testing services. All completed exams must be received by
12:00 NOON Central Time on December 05, 2016 to allow timely grade reporting to the UTD
Registrar.

If any student needs special accommodations, please seek the instructor's approval in advance. If
you have any questions about using either UTD or outside testing center service, please contact
the UTD Student Success Center (972-883-6707; TestingCenter@utdallas.edu).

Grading Policy
There are two examinations, five homework assignments and a final paper. The weights on these
are:
- Exam 1 (online): 25%
- Exam 2 (proctored): 25%
- Homework: 25% (5% each)
- Final Paper: 25%

Grading Scale

Scaled Score	Letter Equivalent
≥ 90	A
≥ 87.50 & < 90.00	A-
≥ 85.00 & < 87.50	B+
≥ 80.00 & < 85.00	B
≥ 77.50 & < 80.00	B-
≥ 75.00 & < 77.50	C+
≥ 65.00 & < 75.00	C
< 65.00	F

At the end of the semester, I may adjust the final cut-offs appropriately based on the degree of
difficulty of the graded material**. Useful comments and discussions posted on the discussion
board will play a role in assessing these cutoffs, so, class participation could help improve
your grade, even though there are no points explicitly allocated for it.**

<u>**Assignments**</u>
There will be **five** homework assignments in this course. Each homework assignment will
involve a maximum of three questions. Each homework assignment will be worth 5% of the

final grade. You will have 1 week to work on most homework assignments and 2 weeks on a few.

Term Paper

25% of the final grade will be determined by your performance on a term paper. Term papers can be undertaken in **groups of up to 5** students. The objective of the term paper is to provide you with the opportunity to investigate relatively cutting edge topics that are of interest to you, and that are otherwise beyond the scope of an introductory course. Consequently, the topic for the paper is quite flexible (of course, it has to involve some form of new technology related to data communications). Examples of topics considered by past students include Voice over IP, 4G (wireless), Online Gaming, and RFID, to name a few (some of these are not "new" any more).

A 1-page proposal is due on or before **October 03, 2016** and must be approved by the instructor; **failure to submit a proposal by this date will result in a grade of zero for the paper**. Topics will be approved on a first-come-first-served basis, and no two groups can work on the same topic. The **final paper is due on or before November 28, 2016**. The submitted document should be 10-12 (double spaced) pages in length, in 12-point font, on letter-size paper with 1-inch margins. It should include a minimum of five appropriate references and citations (while it might be useful, Wikipedia is not considered an appropriate research source). A professional paper in terms of style and mechanics (spelling, etc.) is expected. The grade for the project will be determined primarily on the ideas put forward in the paper, the evidence and logical thought provided to support these ideas, the organization of the write-up, and on the presentation itself. In addition, your grade will be affected by how your group members evaluate your contribution.

Students are expected to form groups by themselves. Once the groups have been formed, please let the instructor know the members of each group. A private discussion area may be set up on the discussion board for internal group communications. A group chat room can also be created for each group to use. A web conference system is available for use. Teams can schedule a live web conference for team work. Please see the Web Conferencing page for instructions and web conference information.

Assignment submission instructions

Locate the assignment in your eLearning course. You will submit your assignments in the required file format with a simple file name and a file extension. To submit your assignment, click on the assignment name link and follow the on-screen instructions to upload and submit your file(s). For additional information on how to submit assignments, view the Submitting An Assignment video tutorial.

Please Note: Each assignment link will be deactivated after the assignment due time. After your submission is graded, you may click each assignment's "Graded" tab to check the results and feedback. For any team project assignments, one group member will submit the assignment for the group and all group members will be able to view the results and feedback once it's been graded.

Turnitin eLearning Assignment Submission Instructions

The final Term Paper will be submitted and examined through the integrated plagiarism detection tool called Turnitin. Please find the Turnitin assignment submission link on the designated course page and click to view it. Please follow the on-screen instruction to view the assignment information and to submit your assignment. (Note: only one single file may be submitted. Some common file types accepted are: Word, HTML, PDF, TXT and RTF.) You can go back to the Turnitin assignment page to view your submission and check the feedback when it becomes

available. If instructor choose to release the Originality Report (showing the percentage of similarity match and the sources detected), you will also be able to view it. For more information and assistance on using Turnitin, please go to: http://www.turnitin.com/en_us/support/help-center.

Participation/Discussions
Class participation is encouraged via the various tools described earlier. As pointed out earlier, useful comments and discussions posted on the discussion board will play a role in assessing the cutoffs in the case of a curve. So, class participation could help improve your grade, even though there are no points explicitly allocated for it.

Online Exam
There will be one online examination, worth 25% of the final grade. You can access this exam by clicking the Assessments link on the course menu or see the quiz/exam icon on the designated page. Please read the on-screen instructions carefully before you click "Begin Assessment". You can access the exam by clicking the exam icon on the designated page. The exam is timed, and you are allowed only one attempt. You will have one hour to attempt the exam. Please read the on-screen instructions carefully before you click "Begin". After the exam is graded and released, you may go back to the assessment and view your graded submission.

Course Policies
Make-up exams
Make-ups (tests, quizzes or homework) will not be allowed without prior permission. In general, there will be no make-ups except for extenuating circumstances.

Extra Credit
There will be no work available for extra-credit.

Late Work
Late submissions will not be accepted without prior permission.
Class Participation
Students are required to login regularly to the online class site. The instructor will use the tracking feature in eLearning to monitor student activity. Students are also required to participate in all class activities such as discussion board, chat or conference sessions and group projects.

Virtual Classroom Citizenship
The same guidelines that apply to traditional classes should be observed in the virtual classroom environment. Please use proper netiquette when interacting with class members and the professor.

Policy on Server Unavailability or Other Technical Difficulties
The university is committed to providing a reliable online course system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will extend the time windows and provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and also contact the UTD eLearning Help Desk: http://www.utdallas.edu/elearning/eLearningHelpdesk.html, 1-866-588-3192. The instructor and the UTD eLearning Help Desk will work with the student to resolve any issues at the earliest possible time.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.