

MSIS 4523
Data Communications Systems
Fall 2008

Instructor: Dr. David Biros
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Course Hours: Stillwater: Tue-Thu, 12:30-1:45PM
Course Location: Stillwater: CLB 318
Office Hours: Tuesday/Thursday from 10:30 to 11:30AM or by appointment

Course Description

This course provides instruction in the basic components of data, voice and video communications, so that the student will become familiar with many of the concepts and acronyms used in the telecommunications industry. It will cover data communications and computer network definitions, concepts and principles, including (but not limited to): the conversion of voice, data, video and image to digital form; network topologies; communications protocols; standards; and the "building blocks" of today's data communication networks, such as bridges, gateways, cabling, and taps. It prepares you to make intelligent and informed decisions about moving voice, data, image and video between locations, by making you aware of the benefits, drawbacks, effects, tradeoffs, and the compromises related to various data communication technologies. You will learn how to make policy, design, and installation decisions related to planning and implementing data communication and computer network applications.

Students "new" to the telecommunications arena ought to be able to speak and understand the "lingo" after this class. Students completing this course should be able to:

- Recall and use the fundamental terminology and concepts of data communication.
- Recall and use the fundamental terminology and concepts of computer networking.
- Discuss the application/impact/issues of data communications and networking in common business applications and management.
- Make intelligent, reasonable, thoughtful, and accurate decisions about the optimal configuration, installation, and operation of a data communication network.
- Students will have a basic understanding of how data is transmitted over the telephone system, of how LANs, WANs, and MANs operate.
- Understand some of the current telecommunications technology and policy issues.

One laboratory session may be included to introduce a practical element to the course. More information on this activity will be forthcoming in class, if applicable.

Course Materials

The primary textbook for the course is:

Data Communications and Networking (4th Ed.) by Behrouz A. Forouzan, McGraw- Hill, 2003, ISBN 0-07-296775-7

I will post accompanying slides on Blackboard each week for your use.

Additional Materials will be drawn from a variety of sources, including the Internet and the following alternative texts.

- **DATA AND COMPUTER COMMUNICATIONS**, 2000 6th ed. Stallings, William
- **BUSINESS DATA COMMUNICATIONS**, 2001, 4TH ed. Stallings, William
- **PRINCIPLES OF COMPUTER SECURITY**, 2004 Conklin, et al.

These materials as well as others will be referred to during the class and students will be responsible for the information in the materials referred to in class.

Online

We will be using online media extensively to supplement class sessions. Please check these online sources frequently. E-mail will be used for private communication to individual class members. I expect you to check your e-mail regularly, and to inform me of changes to your preferred address for receiving e-mail.

We will be using Desire to Learn (D2L) to assist with class communications this term. You should be able to login by linking to <https://oc.okstate.edu/>.

I will attempt to place soft copies of all lecture presentations on D2L prior to class, however, I can make no assurances that material made available online is the same as that presented in class, or that it will be a complete copy of the material presented. I reserve the right to add to or delete from this material at any time, without notice.

Attendance

Class attendance is expected. Since much of the material comes from lectures you will not be able to find it elsewhere. If you do miss a class it is your responsibility to get notes from a classmate, etc. .

Course Guidelines:

1. This course is intended to be an intensive train ride of data communication topics. We will cover many topics in brief this semester. The learning activities will consist of course readings, class lectures, discussions, and homework
2. Grades will be assigned on the traditional (90 or above: A; 80-89: B; 70-79: C; 60-69: D, 59 or less: F) scale. The distribution of points is as follows:

Exams (midterm and final)	70 % (25-25-30)
Quizzes	20 %

3. *Exams*

There will be three exams in class. Exams will include multiple choice, short answer, and essay questions. **ALL** material including presentation slides, lectures, student contributions, guest lectures, etc. may be included on the exams. The final is not comprehensive, but certain material presented early in the term may support topics in later sessions. Since all material is potentially testable, class attendance is of the utmost importance.

4. *Quizzes*

There will be two quizzes. Quiz dates are noted on the course schedule. Quizzes are typically 20 questions in multiple choice format. Homework will be given when practical. It pays to do the homework. Not only are homework assignments graded, but many quiz and exam questions come from homework assignments.

5 *Contact*

The best means of contacting me is via email. I check it daily. I **do not** like voice mail.

OSU/Class Policies

Attendance:

Learning in an evolving course such as MSIS 4523 occurs not only through the instructor's lectures, but also through the interaction taking place in class. You benefit from the diversity of backgrounds, experiences, and skill levels that are present in this class. **All** material presented in class may be included on the exams. This includes chapter material, supplemental information presented by the instructor, and assigned

information provided by the class (e.g. term papers; special assignments). Further, sometimes materials and announcements are presented in class that do not always get posted to D2L. Should you need to miss a class, please coordinate the absence with me well before the date of the class.

Academic Dishonesty:

All students are expected to observe OSU's honor code. Specifically, I expect all homework and projects to be completed individually. This is the only way we can all learn "by getting our hands dirty." It is OK (and even encouraged) to consult your classmates on the details of assignments and projects. However, the final submission should be yours and yours alone. Please also note that there are significant penalties for plagiarism. If your write-up is determined to include plagiarized material, it will receive a score of **zero**. Cheating on course exams or quizzes will result in a course grade of "F."

Cell Phones, I-Pods, Text Messaging, Etc.:

Please ensure your cell phones, pagers, PDAs are turned off or set to silent mode. While note taking on laptops and other portable devices is aloud, text messaging is not. If you have a laptop in the room, be prepared to research topical issues that may come up in class.

Special Accommodations for Students:

According to the American Disabilities Act, each student is responsible for notifying the University of his or her disability and to request accommodations. If you think that you need special help for qualified disabilities, please inform me **AND** contact the Office of Student Disability Services, 315 Student Union.

Syllabus Attachment:

Additional university and Spear School of Business course policies can be found at <http://osu.okstate.edu/acadaffr/aa/syllabus.htm>

Tentative Course Schedule – Subject to Change as Required

DATE	TOPICS	PREPARATORY READINGS
Jan 8 Jan 10	Introduction to Data Communications; Terms, Units, Standards, TCP/IP Model, Internet Applications, History	Chapters 1 & 2.
Jan 15 Jan 17	Dr. B Out Data and Signals/Digital Transmission	Chapters 3 & 4
Jan 22 Jan 24	Analog Transmission Bandwidth Utilization Transmission Media	Chapter 5, 6, & 7
Jan 29 Jan 31	Switching Telephone and Cable Networks	Chapters 8 & 9 (QUIZ #1)
Feb 5 Feb 7	Error Detection and Corrections Data Link Control; Multiple Access	Chapters 10, & 11
Feb 12 Feb 14	Multiple Access	(EXAM #1) Chapter 12
Feb 19 Feb 21	Wired LANS Wireless LANS & Review	Chapters 13 & 14
Feb 26 Feb 28	Connecting LANS Wireless WANS	Chapters 15 & 16
Mar 4 Mar 6	SONET/SDH Virtual Circuit Networks	Chapter 17 & 18
Mar 11 Mar 13	Logical Addressing Internet Protocol Address Mapping	Chapters 19, 20, & 21 (QUIZ #2)
Mar 18 Mar 20	SPRING BREAK WEEK	
Mar 25 Mar 27	Delivery, Forwarding, and Routing Process-to-Process Delivery Congestion Control	Chapters 22, 23 & 24
Apr 1 Apr 3	DNS Remote Logging, Email	Chapters 25 & 26
Apr 8	WWW and HTTP	Chapters 27 & 28

Apr 10	Network Mgt	
Apr 15	Multi-media	Chapter 29 & 30
Apr 17	Cryptography	
Apr 22	Network Security	Chapter 31 and 32
Apr 24	Security on the Internet	Review
Apr 29	Final Exam Week	(EXAM #3)
May 1		

Other topics to be touched on as time allows:

- Network Management
- ATM and Frame Relay
- Wireless
- Voice Networks and Services
- Handling Real Time Applications
- Distributed Applications
- Client Server
- Internet Governance
- Policy Issues