**MIS 340 Data Communications & Networking in a Global Environment.**

**Spring 2011**

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**Office Hours/Location:** After each class, 10:30am until 12:00am Tuesday & Thursday at my office, and other times by appointment. / Office Location A129J

**Prerequisites:** [MIS 295](http://www.ua.edu/catalogs/undergraduate/45000.html#MIS295#MIS295) and either admission to the MIS program or permission of the Director of the MIS program.

**Catalog Description**: The International standards based technologies which enable the Global Interchange of Information are presented. Data Comm (DC) models, components, terminology, and interaction effects between DC and software applications are evaluated in multiple network architecture configurations supporting transactional knowledge workers, e-business, and e-commerce applications.

**Course Overview**

This course is an introductory course in information communications. Its primary objective is to introduce students to the basic technology concepts related to creating and deploying distributed applications for Global Business Operations.

* Historical Review of centralized Application development and the business drivers that initiated the evolution to de-centralized applications and the inherent communication technology requirements that were necessary to support this de-centralization.
* An overview of how the International Standards ISO Internet network model which supports the largest Global Network in existence, functions. This will involve an understanding of the concepts of messaging using layers to facilitate distributed application communication.
* Develop a basic understanding of how a Local Area Network (LAN) operates from a hardware and administrative software perspective in both guided media and wireless LAN’s
* Introduction to Networking technologies to support LAN, WLAN, Backbone, WAN and the Internet configurations. Discussion of the management implications associated with these technologies in a Global environment.
* Introduction to Network Management and Security issues and the implications to Global Business Data Communications.
* Introduction to Future application decentralization trends such as Virtualization and Cloud computing and a discussion of the potential implications of security and business intellectual property rights.

**Course Methods**

Our interactions, in and out of the classroom, will be on a professional basis.

All correspondences such as emails and voicemails should be clearly thought out with defined messages. The majority of exams will be written. You will be expected to write in clear business language.

As a professional, your integrity and reputation are your greatest assets. A professional does not lie, cheat, or steal or tolerate those who do. As a professional, you are expected to be on time and participate with substance in class discussions.

It is normal to not have all the answers. The goal of our business to find the answers that can be executed. Through participation and discussions, we will work together to first understand a situation and then logically find appropriate answers.

Our ultimate goal is to become clear thinking problem solvers. We will have the confidence to listen and explain our reasoning.

| **Class** | **Date** | **Subject** | **Reading** |
| --- | --- | --- | --- |
| 1 | Jan 13 | Syllabus Review  Historical review of centralized application and the evolution to decentralized. |  |
|  |  |  |  |
| 2 | Jan 18 | Introduction to the ISO Internet Model and an overview of messaging thru layers | Fitzgerald & Dennis Ch. 1 |
| 3 | Jan 20 | Application Layer – Distributed Application Architectures | Fitzgerald & Dennis Ch. 2 |
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| 4 | Jan 25 | Application examples and protocols | Fitzgerald & Dennis Ch. 2 |
| 5 | Jan 27 | Function of the Transport Layer. Overview of TCP | Fitzgerald & Dennis Ch. 5 |
| 6 | Feb 1 | Transport Layer Con’t | Fitzgerald & Dennis Ch. 5 |
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| 7 | Feb 3 | Function of the Network Layer – addressing, subnet masks, routing | Fitzgerald & Dennis Ch. 5 |
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| 8 | Feb 8 | Functions of the Network Layer  Con’t. | Fitzgerald & Dennis Ch. 5 |
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| 9 | Feb 10 | Exam 1 |  |
|  |  |  |  |
| 10 | Feb 15 | Functions of the Data Link Layer. Media Access Control – controlled vs. contention based methods | Fitzgerald & Dennis Ch. 4 |
| 11 | Feb 17 | Error Control – Sources, influence on packet size, Ethernet | Fitzgerald & Dennis Ch. 4 |
| 12 | Feb 22 | The Physical Layer. – Analog vs Digital signaling, cabling terminology | Fitzgerald & Dennis Ch. 3 |
| 13 | Feb 24 | analog to digital conversion, multiplexing | Fitzgerald & Dennis Ch. 3 |
|  |  |  |  |
| 14 | Mar 1 | Introduction to Local Area Networks. Overview of hardware, OS functions in a guided media LAN | Fitzgerald & Dennis Ch. 6 |
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| 15 | Mar 3 | Introduction to Administrative Software. Active Server Directory, DNS and DHCP. | Fitzgerald & Dennis Ch. 6 |
| 16 | Mar 8 | Introduction to Wireless LAN technology WiFi. | Fitzgerald & Dennis Ch. 7 |
| 17 | Mar 10 | Exam 2 |  |
|  |  |  |  |
| 18 | Mar 15/17 | Spring Break |  |
|  |  |  |  |
| 19 | Mar 22 | Other Wireless technologies – Wimax and Bluetooth. |  |
| 20 | Mar 24 | Improving LAN & WLAN performance | Fitzgerald & Dennis Ch. 7 |
| 21 | Mar 29 | Backbone & WAN's – Private vs Public Networks | Fitzgerald & Dennis Ch. 8&9 |
| 22 | Mar 31 | Introduction to VPN’s | Fitzgerald & Dennis Ch. 9 |
| 23 | Apr 5 | Internet Access Technologies | Fitzgerald & Dennis Ch. 10. |
| 24 | Apr 7 | Internet Governance &Internet 2 | Fitzgerald & Dennis Ch. 10 |
|  |  |  |  |
| 25 | Apr 12 | Network Security-Risk Assessment | Fitzgerald & Dennis Ch. 11 |
|  |  |  |  |
| 26 | Apr 14 | Intrusion Prevention | Fitzgerald & Dennis Ch. 11 |
| 27 | Apr 19 | Encryption – private key vs public key | Fitzgerald & Dennis Ch. 11 |
| 28 | Apr 21 | SSL and Secure Certificates |  |
| 29 | Apr 26 | Exam 3 |  |
| 30 | Apr 28 | Final Review |  |
|  | May3- May 7 | FINAL EXAM WEEK |  |

The instructor reserves the right to make changes in this syllabus at any time during the semester.

**Text:** The supporting text will be Business Data Communications & Networking, Fitzgerald/Dennis. 10th Edition. ISBN 978-0-470-05575-5

**Sharepoint:** The MIS 340 SharePoint page will be used to post all lecture notes, exams and other pertinent information regarding MIS 340. Verify, that you can access the 340 page. If you cannot, notify and resolve your issue with Labmx.

**Quizzes:** Unannounced quizzes may be given weekly at the Instructor’s discretion. These will be typically one question tests on lecture material covered in the previous two lectures.

**AIME’s meetings.** It is the expectation that all MIS 340 students will attend the Tuesday night AIME’s meeting. They will be held in Austin 30 starting at 6:30. Class will generally be let out 5-10 minutes early so that there is sufficient time to get to Austin Hall.

**Grading:** 3 Exams plus the final for a total of 70%; The Final Exam is 1.5 times the weighting of the Semester Exams and will be comprehensive. Quizzes 10%; Participation/Assignments 20% . Outside Activities such a technical research topics may be assigned. No late assignments will be accepted.

**Attendance** is **required. Attendance will be taken and excessive absences will impact the final grade.** If you cannot attend a class, you must notify the instructor by e-mail 24 hours prior to the class meeting time stating the reason for the absence. Failure to do so will result in an unexcused absence.

**Academic Misconduct** will not be tolerated. All acts of dishonesty in any work   
constitute academic misconduct. The Academic Misconduct Disciplinary Policy will be followed in the event of academic misconduct.

**Disabilities:** If you need to request the accommodation of a disability, you must contact the Office of Disability Services at 348-4285 as soon as possible. You may then contact the instructor to schedule an appointment to discuss your request.

**Severe Weather** is always a possibility. In the event of an emergency, we will adhere to the following actions in accordance with University policies.

FIRE/FIRE ALARM: Evacuate the building and stay out of the building at a safe distance until authorized to return.

TORNADO WARNING: Move to the Lower Level, inside classrooms, offices or corridors. Remain until the warning has expired. Classes are cancelled until the warning expires.