

Data Communications and Networking

ECGR3123 – Fall 2014

Instructor:

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Lecture Schedule:

Monday and Wednesday 2:00pm--3:15pm, EPIC 2230

Course Website:

The course website is available through **Moodle 2**. All the course-related materials, lecture videos, assignments, and announcements will be posted at the course website. It is accessed via 49er Express, in the **MyCourses** area.

Course Content:

This course provides an overview of data communication concepts. It covers the fundamental principles of data transmission, data link control, multiplexing, and circuit and packet switching. It focuses on the physical layer, data link layer, and medium access control of the protocol stack. The goal of this course is to provide a first-level introduction of working principles of data communications, preparing students for entry to advanced courses in communications and networking.

Textbook:

William Stallings, *Data & Computer Communications*, Prentice-Hall.

References:

- A. S. Tenenbaum, *Computer Networks*, Prentice Hall.

Outcomes:

The following competencies will be developed:

- Understanding of the principles of transmissions of analog and digital signals over different media, the principles of signal encoding, error control, and flow control, the principles of multiplexing, and the concepts of circuit and packet switching.
- Knowledge of network protocol architecture.
- An ability to apply the knowledge of data communications to identify, formulate, and solve engineering problems.
- An ability to design point-to-point data communication systems to meet desired needs.
- An ability to use the necessary communication techniques and tools for engineering practice.

Grading:

There are 4 homework assignments, 4 in-class close-book/notes quizzes, one midterm exam, and one final exam required for this course. They will count toward the grade as follows:

Homework:	20%
Quiz:	20%
Midterm Exam:	25%
Final Exam:	35%

Tentative Course Outline:

The following topics will be covered as time permits:

- Introduction to data communications and protocol architecture (OSI and TCP/IP protocol architecture)
- Data communication concepts: analog and digital signals, transmission media and impairments, modulation.
- Data link control: flow control and error control
- Multiplexing: FDM, synchronous and asynchronous TDM.
- Circuit and packet switching

Course Policies:

- There will be **no make-up exams and quizzes**. Students who cannot attend an exam with health emergency must show official proofs.
- Assignments are due at the beginning of the class. Assignments will be graded and solutions will be provided. Late assignments are not accepted and will have a **grade of zero**.
- All assignments are assumed to be an **individual effort** unless otherwise specified by the instructor.
- If you end up doing poorly in the class, please **DO NOT** ask for "extra work" to raise your grade. This would not be fair to other students.

Students with Disabilities:

Students in this course seeking accommodations to disabilities must first consult with the Office of Disability Services (<http://www.ds.uncc.edu/>) and follow the instructions of that office for obtaining accommodations.

Academic Integrity:

All students are required to read and abide by the Code of Student Academic Integrity. Violations of the Code of Student Academic Integrity, including plagiarism, will result in disciplinary action as provided in the Code. Definitions and examples of plagiarism are set forth in the Code. The Code is available from the Dean of Students Office online at <http://www.legal.uncc.edu/policies/ps-105.html>

You are encouraged to discuss problems and papers with others as long as this does not involve copying of code or solutions. If you have any doubt about whether something is legal or not, please do check with the Instructor.

Note:

The standards and requirements set forth in this syllabus may be modified at any time by the course instructor. Notice of such changes will be by announcement in class.