CIS 457 Data Communications – Winter 2019

Course Description

An introduction to data communications techniques, particularly as applied to computer networks. Physical media and devices, data link and network protocols, and other data communications topics will be studied.

Course Web Page

Students are responsible for all information posted on the course web page:
`http://www.cis.gvsu.edu/~kalafuta/cis457`
Additionally, Blackboard will be used for posting of grades and electronic submission of projects when required.

Instructor

Dr. Andrew Kalafut
Office Hours: M 11:00 - 11:50am, W 12:00 - 12:50pm, F 1:00 - 1:50pm
Office: MAK C-2-309
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Prerequisites

CIS 241 and (CIS major, CIS minor, or EGR major)

Required Text

Peterson, L., & Davie, B. (2018). *Computer Networks: A Systems Approach* (version 5.2 or later). Avaiable at `http://book.systemsapproach.org`

Objectives

- Explain layered communication protocol architecture.

- Describe the operation of various routing protocols.

- Compare reliable and an unreliable data transfer protocols.

- Develop distributed network application using the Sockets interface.

- Apply various security measures in networks.

Topics

The course will be structured approximately as follows. This schedule is subject to change depending on topic interest and speed of coverage. Students are expected to frequently check the more detailed schedule posted on the course web page.

Week	Topic
1	Introduction
2	Reliable delivery
3	Connection Technologies
4	Forwarding
5	Addressing
6	Routing
7	Midterm, SDN
8	Network Security
9	End-to-end Communication
10	Resource Management
11	Congestion control
12	Traditional applications
13	Multimedia applications
14	Data representation
	Final Exam: Monday, April 22, 2:00 - 3:50 PM

Graded Activities

Exams:

We will have a midterm and a final exam to assess your knowledge of networking concepts discussed in lecture and covered in the assigned reading. The final exam is not comprehensive except to the extent that basic concepts from the beginning of the semester interact with the concepts from the second half of the semester.

Projects:

Four programming intensive projects will be assigned. You may work individually or in groups on these projects. They are designed to reinforce lecture concepts, while also relying on and building your programming skills.

Lab Assignments:

Eight lab assignments will be assigned. They are to be done individually. Some of these assignments are intended to reinforce lecture concepts, while others are intended to introduce the skills needed for success on the projects.

Grading

The course grade will be determined as follows: final exam 20%, mid-term exam 20%, lab projects 11% each (total 44%), lab assignments 2% each (total 16%). Course letter grades will be determined according to the following scale:

A	A-	B+	B	B-	C+	C	C-	D+	D
93%	90%	87%	83%	80%	77%	73%	70%	67%	60%

Policies and Expectations

Lab Projects:

Projects are due on blackboard at 11:59PM, on the specified due date. Hard copy materials may be turned in at the next class meeting after the due date. Some projects will require a demonstration in lab or in office hours. Failure to demonstrate a project will result in a grade of a 0 for that project. The project you demonstrate must match the code turned in by the start of lab on the due date.

Lab Assignments:

Lab assignments are typically designed to be completed in lab, and are due by the start of lecture on Friday the week they are assigned.

Lecture Assignments:

In-class work may be given during lecture. The purpose of these assignments is to practice and evaluate your knowledge in a low-pressure setting. This work will not be graded, but answers will be discussed.

Exams:

The date of exams will be provided at least a week in advance. Additionally, you will be given time in class to ask questions for review. Exams in this course will be closed book. A small amount of notes may be allowed at the discretion of the instructor. Exams must be taken on the specified date and time, they will not be rescheduled except in emergencies.

Reading:

All assigned reading is expected to be completed before class. You will be responsible for learning the material in the reading. Lecture will not be a duplication of the material in the textbook.

Attendance:

On-time attendance is expected at lecture and lab. Class will start and end on time each day. Often, information that will help you complete the lab assignments and projects will be conveyed during the lab time.

Group work:

Projects will allow you to work alone, or in groups of 2 or 3, as specified in the assignment description. Groups of more than 3 will not be allowed under any circumstances. If, in the judgement of the instructor the efforts of each group member are very disproportionate, grades may be adjusted accordingly.

Late work:

No points will be awarded for work turned in late, unless arrangements are made, for sufficient reason, in advance of the due date.

Grade disputes:

Grades will be posted on blackboard. Any questions regarding posted grades must be raised within 7 days of the grade posting date.

Academic honesty:

All exams are to be completed individually. Lab assignments may or may not allow group work as specified in the assignment. All outside resources used, including Internet sources, must be cited. It is never acceptable to post any part of any assignment or project online asking for help. No academic dishonesty will be tolerated. Consequences will include the most severe penalty allowed by GVSU policy. Please read the CIS honesty policy at http://www.cis.gvsu.edu/academic-honesty

Special needs:

If you are in need of accommodations due to a learning, physical, or other disability you must present a memo to me from Disability Support Resources (DSR), indicating the existence of a disability and the suggested reasonable accommodations. If you have not already done so, please contact the Disability Support Resources office (4015 JHZ) by calling 331-2490 or email to dsrgvsu@gvsu.edu. Please note that I cannot provide accommodations based upon disability until I have received a copy of the DSR issued memo. All discussions will remain confidential.

GVSU Course Policies:

This course is subject to the GVSU policies listed at http://www.gvsu.edu/coursepolicies/