CSC 6290 – Data Communication and Computer Networks
Section 001
Computer Science
M W 2:30 -- 3:45pm 0318 STAT
Fall 2017

Faculty contact information:
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Course Description:
This is a computer networking class targeted for graduate and advanced senior undergraduate students. The objective of the course is to make students familiar with data communication fundamentals and principles governing computer networks and their design, components, connections, and protocols. The contents of the course are grouped into two themes: communication and networks. Communication will cover data communication fundamentals and theories (focusing mostly on wireless communication), introduction to signal processing, Fourier Transformation applications, and digital modulation. Networking will cover the design, structure, and protocols of computer networks. The lectures on Networking are structured in a top-down approach to cover the layers of network design.

Supplementary information for the course is available at http://blackboard.wayne.edu. Log on with your Access ID for lecture slides, announcements, course syllabus, and other information for the course. You will submit your assignments and check grades there too.

Credit Hours: 3

Prerequisite: CSC 5250

Required and optional textbook(s):
The following book is required and will be used as the textbook:
The following book is optional/recommended for communication part of the course.
Computer Programs:
One or more homework assignments may involve socket programming, you may use any language and platform. But using C on Linux will make your implementation much easier. “Beej's Guide to Network Programming Using Internet Sockets” is a good tutorial to learn socket programming.

Course contents:
1. Communication: data communication fundamentals and theories, introduction to signal processing, Fourier Transformation applications, digital modulation, and wireless signal propagation and characteristics.
2. Introduction to Computer Networks: Applications of computer networks, Network classification, Internet, Protocol stack, standardization
3. Application Layer: Web, FTP, Mail access protocol, DNS, P2P Applications, Socket Programming
5. Network Layer: Routing protocols, Internet protocol (IP)
6. Link Layer: Error detection and correction, Media Access Control protocols including ALOHA, CSMA, TDMA
7. Security: Symmetric-key cryptography, Public key algorithms, Digital signatures

Course Learning Objectives:
Upon successful completion of this class, the student will be able to:
• Be familiar with
  – Fundamentals of communication
  – Digital modulation, communication theories
  – Network design and layers
  – Advanced network topics
  – Protocols at different layers of network
• To know about wireless networks and standards
• Have preliminary concepts of network security and cryptography
• Be familiar with one or more tools for implementing computer network projects.

Assessment:
Homework (4 to 5 homework assignments): 30%
Midterm (one): 30%
Final exam: 40%

Grading Scale:
Score distribution (on a scale of 100) for letter grades is as follows.
A: 90-100
B+: 80-84
B: 75-79
B-: 70-74
C+: 65-69
C: 60-64
F: 0-59

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Grading Policies:
Homework/tests cannot be submitted/taken late unless there is prior approval from the instructor, or there is formal evidence of medical/other emergencies. Grades will be uploaded in Blackboard.

Religious Holidays:
Because of the extraordinary variety of religious affiliations of the University student body and staff, the Academic Calendar makes no provisions for religious holidays. However, it is University policy to respect the faith and religious obligations of the individual. Students with classes or examinations that conflict with their religious observances are expected to notify their instructors well in advance so that mutually agreeable alternatives may be worked out.

Student Disabilities Services:
• If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located in the Adamany Undergraduate Library. The SDS telephone number is 313-577-1851 or 313-202-4216 (Videophone use only). Once your accommodation is in place, someone can meet with you privately to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.
• Students who are registered with Student Disability Services and who are eligible for alternate testing accommodations such as extended test time and/or a distraction-reduced environment should present the required test permit to the professor at least one week in advance of the exam. Federal law requires that a student registered with SDS is entitled to the reasonable accommodations specified in the student’s accommodation letter, which might include allowing the student to take the final exam on a day different than the rest of the class.

Academic Dishonesty - Plagiarism and Cheating:
Academic misbehavior means any activity that tends to compromise the academic integrity of the institution or subvert the education process. All forms of academic misbehavior are prohibited at Wayne State University, as outlined in the Student Code of Conduct (http://www.doso.wayne.edu/student-conduct-services.html). Students who commit or assist in committing dishonest acts are subject to downgrading (to a failing grade for the test, paper, or other course-related activity in question, or for the entire course) and/or additional sanctions as described in the Student Code of Conduct.
• Cheating: Intentionally using or attempting to use, or intentionally providing or attempting to provide, unauthorized materials, information or assistance in any academic exercise. Examples include: (a) copying from another student’s test paper; (b) allowing another student to copy from a test paper; (c) using unauthorized material such as a "cheat sheet" during an exam.
• **Fabrication**: Intentional and unauthorized falsification of any information or citation. Examples include: (a) citation of information not taken from the source indicated; (b) listing sources in a bibliography not used in a research paper.

• **Plagiarism**: To take and use another’s words or ideas as one’s own. Examples include: (a) failure to use appropriate referencing when using the words or ideas of other persons; (b) altering the language, paraphrasing, omitting, rearranging, or forming new combinations of words in an attempt to make the thoughts of another appear as your own.

• **Other** forms of academic misbehavior include, but are not limited to: (a) unauthorized use of resources, or any attempt to limit another student’s access to educational resources, or any attempt to alter equipment so as to lead to an incorrect answer for subsequent users; (b) enlisting the assistance of a substitute in the taking of examinations; (c) violating course rules as defined in the course syllabus or other written information provided to the student; (d) selling, buying or stealing all or part of an un-administered test or answers to the test; (e) changing or altering a grade on a test or other academic grade records.

**Course Drops and Withdrawals**: In the first two weeks of the (full) term, students can drop this class and receive 100% tuition and course fee cancellation. After the end of the second week there is no tuition or fee cancellation. Students who wish to withdraw from the class can initiate a withdrawal request on Pipeline. You will receive a transcript notation of WP (passing), WF (failing), or WN (no graded work) at the time of withdrawal. No withdrawals can be initiated after the end of the tenth week. Students enrolled in the 10th week and beyond will receive a grade. Because withdrawing from courses may have negative academic and financial consequences, students considering course withdrawal should make sure they fully understand all the consequences before taking this step. More information on this can be found at: http://reg.wayne.edu/pdf-policies/students.pdf

**Student services:**

- The Academic Success Center (1600 Undergraduate Library) assists students with content in select courses and in strengthening study skills. Visit www.success.wayne.edu for schedules and information on study skills workshops, tutoring and supplemental instruction (primarily in 1000 and 2000 level courses).
- The Writing Center is located on the 2nd floor of the Undergraduate Library and provides individual tutoring consultations free of charge. Visit http://clasweb.clas.wayne.edu/writing to obtain information on tutors, appointments, and the type of help they can provide.

**Class recordings:**

Students need prior written permission from the instructor before recording any portion of this class. If permission is granted, the audio and/or video recording is to be used only for the student’s personal instructional use. Such recordings are not intended for a wider public audience, such as postings to the internet or sharing with others. Students registered with Student Disabilities Services (SDS) who wish to record class materials must present their specific accommodation to the instructor, who will subsequently comply with the request unless there is some specific reason why s/he cannot, such as discussion of confidential or protected information.

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