Course Objective: To study the basic concepts of communication networks, protocols and their performance.

Instructor: Henry Owen
Office: 
Office Hours: 
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Caution: To be successful in this class you will need to read the textbook. Although the lectures follow the textbook closely, students who do not read the text book (and incorrectly assume they got all the material needed just from the lectures) typically do not earn good grades. Students who try to read most of the material all at once instead of on a regular basis to prepare for class typically do not earn good grades.

Text

Grading ECE3076: Grading CS3251:
| Homework 10% | Homework and Sockets Programming** 10% |
| Test 1 30%   | Test 1 30% |
| Test 2 30%   | Test 2 30% |
| Final 30%    | Final 30% |

**CS students must complete both programming assignments or their course letter grade is reduced by one letter grade.

Homework not turned in by the due date/time will be penalized by 10% per day. Homework is to be turned in by uploading a pdf file (not word, not text, not rtf) to the canvas web site.

Test will be closed book and closed notes but you are allowed one side of an 8.5 x 11 inch hand written cheat sheet.

Class Web Site: 
https://canvas.gatech.edu/

Academic Honesty: Follow the Georgia Tech Honor Code - http://www.deanofstudents.gatech.edu/. You MAY NOT use homework solutions that others have developed as the basis for your solutions. Copying/using online solution manual answers is cheating. However, you ARE allowed to discuss the problems (and their solutions) with fellow students in the class this semester and with the instructor. All conduct in this course will be governed by the Georgia Tech honor code.
Class Attendance: Missing a “large” number of classes will lower your course grade since the class curve at the end of the semester will only be applied only to those that attend class. If you miss an exam without notice prior to the start of the exam, you will receive a zero for that exam.

OUTLINE
Introduction
    network edge
    end systems, access networks, links
    network core
    packet switching, circuit switching, network structure
    delay, loss, throughput in networks
    protocol layers, service models
Application Layer
    Web and HTTP
    Electronic mail
    Domain Name System
    video streaming and content distribution networks
    Socket programming with UDP and TCP*
Transport Layer
    multiplexing and demultiplexing
    connectionless transport: UDP
    principles of reliable data transfer
    connection-oriented transport: TCP
    principles of congestion control
    TCP congestion control
Network layer: The Data Plane
    data plane
    control plane
    Router architecture
    IP: Internet Protocol
    Generalized Forward and SDN
Network Layer: The Control Plane
    routing protocols
    intra-AS routing in the Internet: OSPF
    routing among the ISPs: BGP
    The SDN control plane
Link Layer and LANs
    error detection, correction
    multiple access protocols
    LANs
    data center networking
    day in the life of a web request

Wireless Networking
    Wireless links, characteristics
    IEEE 802.11 wireless LANs (‘‘Wi-Fi’’)


**Student-Faculty Expectations Agreement**

At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See [http://www.catalog.gatech.edu/rules/22/](http://www.catalog.gatech.edu/rules/22/) for an articulation of some basic expectation that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

**Accommodations for Students with Disabilities**

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or [http://disabilityservices.gatech.edu/](http://disabilityservices.gatech.edu/), as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.