COURSE SYLLABUS

CS 453

Data and Computer Communications

Course Introduction

Credit Hours: 3

Prerequisite Courses: CS 350 with a C- or better

Instructor: Professor Brian D. Woerner

Class Meets: MWF 11-11:50am - AER 137

Course Introduction:
An in-depth study of the Internet, networking fundamentals, protocols, algorithms, and principles of distributed computing; introduction to networking security and management.

Faculty Contact Information

Instructor Office Location: AER 254

Office Hours: MWF 2-3pm or by appointment

Instructor Email and/or Phone: email: brian.woerner@mail.wvu.edu phone: 304-293-9141

Instructional Materials

Required Instructional Materials:
James Kurose and Keith Ross, Computer Networking: A Top-Down Approach, Pearson, 2017, ISBN-13: 978-0-13-359414-0

Optional Instructional Materials:
Additional course notes and materials will be available on e-campus website

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Course Learning Outcomes

Course Learning Outcomes:
Upon completion of this course, students will be able to:

1. Describe the operation of the TCP/IP protocol
2. Analyze the properties of network protocols [ABET outcome CpE/CS/CYBE (1)]
3. Apply socket programming techniques to establish client-server communication [ABET outcome CS (6)]
4. Describe the principles of mobility management in wireless networks

Assessment

Short Descriptions of and Grading Criteria for Major Assignments/Assessments:
There will be 5 homeworks during the course of the semester. Some of these homeworks will involve simple programming using the Python programming language to illustrate the principles of socket programming for client-server communication. Other homeworks will make use of the Wireshark tool to analyze real-time packet traffic.

There will be 10 short in-class quizzes, based on information from lecture, which may be unannounced. This quizzes will be brief (5-10) at the start of class and cover simple information from recent lectures.

There will be a two mid-term exams and a final exam.

Weight/Distribution of Course Points:

- 5 Homeworks (@8%): 40%
- 10 Quizzes (@ 1%): 10%
- 2 Mid-term Exams (@15%): 30%
- Final Exam: 20%

Mid-Semester Grade:

Based on Homework 1 & 2, Quizzes 1-4, and first Mid-term exam

Final Grading Scale:

Guaranteed grade cutoffs: A >90%, B >80%, C >70%, D >60%

The instructor reserves the right to lower these grade cutoffs to account for the difficulty of assignments and overall class performance.

Course and Institutional Policies

Attendance Policy:
Class attendance is at your discretion but quizzes will be unannounced so it is in your best interest to attend all classes

Late Assignment and Missed Exam Policy:
Late homeworks will be accepted with a penalty for one week after the deadline. Late homeworks submitted longer than one week after the deadline will not be accepted. Exams missed to a valid reason or excused university event will be made up by individual appointment with the instructor.

Inclusivity Policy:

The West Virginia University community is committed to creating and fostering a positive learning and working environment based on open communication, mutual respect, and inclusion.

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in your classes, please advise your instructors and make appropriate arrangements with the Office of Accessibility Services. (https://accessibilityservices.wvu.edu/)

Academic Integrity Policy:

All work submitted for quizzes and exams must be your own unaided work.

You may confer with colleagues on the general approach to homework policies, but the solutions you submit should be your own.

Institutional Policies:
Students are responsible for reviewing policies on inclusivity, academic integrity, incompletes, sale of course materials, sexual misconduct, adverse weather, as well as student evaluation of instruction, and days of special concern/religious holiday statements.

Tentative Outline of Lectures and Assignments

Week 1 (Jan. 13)
- Chapter 1: Computer Networks & the Interview

Week 2 (Jan. 20)
- Chapter 2: Application Layer
- Quiz #1

Week 3 (Jan. 27)
- Chapter 2: Application Layer
- Homework #1 Assigned; Quiz #2

Week 4 (Feb 3)
- Chapter 3: Transport Layer;
- Homework #1 Due

Week 5 (February 10)
- Chapter 3: Transport Layer
- Homework #2 Assigned; Quiz #3

Week 6 (February 17)
- Chapter 3: Transport Layer
- Homework #2 Due; Quiz #4

Week 7 (February 24)
- Chapter 4: The Network Layer-Data Plane
- Mid-Term Exam #1 (tentative date: Friday, February 21)

Week 8 (March 2)

Chapter 5: The Network Layer- Control Plane

Homework #3 Assigned; Quiz #5

Week 8 (March 9)

Chapter 6: The Link Layer and LANS

Homework #3 Due; Quiz #6

Spring Break (March 14-22)

Week 9 (March 23)

Chapter 6: The Link Layer and LANS

Homework #4 Assigned; Quiz #7

Week 10 (March 30)

Chapter 7: Wireless and Mobile Networks

Homework #4 Due; Quiz #8

Week 11 (April 6)

Chapter 7: Wireless and Mobile Networks

Homework #5 Assigned; Mid-Term Exam #2 (tentative date: Friday, April 10)

Week 12 (April 13)

Chapter 8: Security in Computer Networks

Quiz #9

Week 13 (April 20)

Chapter 8: Security in Computer Networks

Quiz #10

Week 14 (April 27)

Chapter 9: Multimedia Networking