**CS 455 (Undergraduates only)**

**Introduction to Networks & Communication**

**CRN 27519 – Spring 2016**

**Course Outline**

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| **Instructor:** | Kurt Maly |
| **Office:** | E&CS 3327 |
| **Phone:** | 683-7722 (Voice) or leave message at main CS office (683-6001) 683-4900 (Fax) |
| **e-mail:** | maly@cs.odu.edu |
| **Lecture:** | T, Th 11:00-12:15 PM (Dragas 1117) |
| **Office Hours:** | T 9:30 – 10:30 AM (E&CS Bldg 3327) |
| **Prerequisites:** | CS250, CS252, CS 270. If you have not taken these courses, contact the instructor. |
| **Text:** | *Computer Networking: A Top-Down Approach*, 6th edition, by James F. Kurose and Keith W. Ross, Addison Wesley, 2012. Text is also available on www.coursesmart.com at approx 50% of the suggested retail price of the hard cover text. It is the full text. Students can highlight, bookmark, take notes, search and even print the text. With a free Coursesmart App they can even download it to an IPhone or IPad. |

**Course Objectives:** The main objective of this course is to introduce the students to the basic concepts of networks and data communications. The summary of the contents is as follows.

* The course begins with an introduction to the Internet and the 5-layered protocol architecture for the Internet and then discusses some day-to-day **applications** built on top of data networks, specifically the Internet. The worldwide web and its relationship to the concepts discussed in class are also covered.
* At the **transport** layer, TCP and UDP protocols are discussed in great detail. In addition, general performance issues in computer networks are discussed.
* At the **network** layer, we discuss different types of routing algorithms and congestion control schemes. The intricacies of internetworking and the IP protocol are also discussed.
* At the **data link** layer, we discuss error detection and correction procedures, we discuss ALOHA, Ethernet, wireless LANs, and Bluetooth protocols. We also some of the technologies for the **physical** layer.

**Attendance policy:** students are expected to attend all classes and participate in discussions. Attendance will be checked and discussion participation will be recorded randomly. After the first unexcused absence, you lose 10 points from the class participation category for every unexcused absence. Requests for absence should be submitted by e-mail to [maly@cs.odu.edu](mailto:maly@cs.odu.edu).

**Foreign students:** you may bring a dictionary (hard copy) to any exam.

**Grading Criteria:** Your grade will be based on the following:

|  |  |  |
| --- | --- | --- |
| Mid-term Examination | 100 points |  |
| Final Examination | 150 points |  |
| Homework  Classroom participation | 180 points  50 points |  |
| **Total** | 480 points |  |

An extra 10 points can be earned through particularly high class participation.

Grades can be obtained through the ‘getgrades’ at a Unix prompt, e.g., getgrades maly cs455 (use this line literally and do not substitute your user name; for the graduate section use getgrades maly cs555).

A necessary condition for a passing grade is a positive attendance and discussion participation record.

**Make-up Tests and Late Assignments**:

Late homework and papers and make-up exams will not normally be permitted. I will give appropriate consideration to documented emergencies, but such arrangements must be made *prior to the due date* in any situations where the conflict is foreseeable.

**Grading Scale:**

|  |  |
| --- | --- |
| Letter Grade | Points |
| A | 94-100 |
| A- | 90-93 |
| B+ | 87-89 |
| B | 84-86 |
| B- | 80-83 |
| C+ | 77-79 |
| C | 74-76 |
| C- | 70-73 |
| D+ | 67-69 |
| D | 64-66 |
| D- | 60-63 |
| F | 0-59 |

**Honor Code:**

All students are expected to abide by the ODU Honor Code. This means that *all* exams and assignments are to be the exclusive work of the student. An honor pledge will be required on *all* work which is to be graded. For more details on the ODU honor code, refer to the Honor pledge posted at <http://studentaffairs.odu.edu/oscai/Honor_Code.shtml> .

**Exams:**

Exams will be open book; handwritten notes may also be brought to the classroom but no electronic devices such as laptops or smart phones.

**E-mail:**

I will use electronic mail (your ODU e-mail) for timely communication, especially of clarification/corrections/changes to homework or projects. Students should check their e-mail on a regular basis. My e-mail is maly@cs.odu.edu.

**Homework**

These are problems generally assigned from the textbook. There will be four such assignments during the semester, each weighted equally. You will have one week to work on each of the assignments. While the students are encouraged to discuss the problems, each individual should prepare their own answers. Any violation of this rule will be considered as cheating and will be dealt with accordingly. **Homework needs to be submitted** on paper in class.

**Academic Honesty:** Everything turned in for grading in this course must be your own work. The instructor reserves the right to question a student orally or in writing and to use his evaluation of the student’s understanding of the assignment and of the submitted solution as evidence of cheating. Violations will be reported to the Honor Council for consideration for punitive action. By CS Dept. policy, students found to be in violation of this rule will, at the very least, receive a failing grade in the course and may be subject to stiffer penalties.

**Course Outline:**

In addition to the chapters listed below, additional readings may be made available via the course web page or through handouts in the class.

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| **Lecture and Homework Schedule** | | | |
| **Month** | **Day** | **Activity** |  |
| January | 12(T) | Chapter 1 |  |
|  | 14(R) | Chapter 1 |  |
|  | 19(T) | Chapter 1 |  |
|  | 21(R) | Chapter 1 |  |
|  | 26(T) | Chapter 2 | |  |  | | --- | --- | |  |  | |
|  | 28(R) | Chapter 2 |  |
| February | 2(T) | Chapter 2 |  |
|  | 4(R) | Chapter 2 | HW#1 assigned (due 2/11) |
|  | 9(T) | Chapter 2 |  |
|  | 11(R) | Chapter 3 |  |
|  | 16(T) | Chapter 3 |  |
|  | 18(R) | Chapter 3 |  |
|  | 23(T) | Chapter 3 | HW #2 assigned (due 3/3) |
|  | 25(R) | Chapter 3 |  |
| March | 1(T) | Exam | Mid-term Examination |
|  | 3(R) | Chapter 3 |  |
|  | 8(T) | NO CLASS | Spring Break |
|  | 10(R) | NO CLASS | Spring Break |
|  | 15(T) | Chapter 4 |  |
|  | 17(R) | Chapter 4 | HW#3 assigned (due 3/24) |
|  | 22(T) | Chapter 4 |  |
|  | 24(R) | Chapter 4 |  |
|  | 29(T) | Chapter 4 |  |
|  | 31(R) | Chapter 5 |  |
| April | 5(T) | Chapter 5 |  |
|  | 7(R) | Chapter 5 | HW#4 assigned (due 4/14) |
|  | 12(T) | Chapter 5 |  |
|  | 14(R) | Chapter 5 |  |
|  | 19(T) | Student presentations |  |
|  | 21(R) | Student presentations |  |
| May | 3(T) | **Final Examination** | 12:30-3:30PM |

**Educational Accessibility:**

Old Dominion University is committed to ensuring equal access to all qualified students with disabilities in accordance with the Americans with Disabilities Act. The Office of Educational Accessibility (OEA) is the campus office that works with students who have disabilities to provide and/or arrange reasonable accommodations.

• If you experience a disability which will impact your ability to access any aspect of my class, please present me with an accommodation letter from OEA so that we can work together to ensure that appropriate accommodations are available to you.

• If you feel that you will experience barriers to your ability to learn and/or testing in my class but do not have an accommodation letter, please consider scheduling an appointment with OEA to determine if academic accommodations are necessary.

The Office of Educational Accessibility is located at 1021 Student Success Center and their phone number is (757)683-4655. Additional information is available at the OEA website: <http://www.odu.edu/educationalaccessibility/>

Students are encouraged to self-disclose disabilities that have been verified by the Office of Educational Accessibility by providing Accommodation Letters to their instructors early in the semester in order to start receiving accommodations. Accommodations will not be made until the Accommodation Letters are provided to instructors each semester.