

Course Syllabus

Please note that the specifics of this Course Syllabus are subject to change. Instructors will notify students of any changes and students will be responsible for abiding them. Even if you print this syllabus, please check the online version often.

Description

Online IST 220 will provide students with a foundational knowledge of the telecommunications and networking industry, as well as the basic concepts inherent to the application of data communications and computer networks in a digital age. This course focuses on the design and development of data communication networks using problems and labs to facilitate student learning. The content provides an introduction to and history of data communications, an overview of different types of networks and network layers, and the future of the industry with a focus on the relationship to e-business and the digital global economy.

Goals for this course include:

- Provide the foundational knowledge of the telecommunications and networking industry.
- Present the basic concepts inherent to the application of data communications and computer networks in the digital age.

Upon completion of this course, each student should be able to:

- Explain the components of computer networks and their relationships to each other.
- Explain the impact of Application Layer Protocols on the user and the network
- Describe the how different Transport Layer protocols package data for transmission across the network.
- Discuss how network layer protocols and routers move packets across the network
- Explain the Link Layer and the Physical Layer

Prerequisites

- [IST 110](#) (Links to an external site.)

Time and Location

T, R: 8:00 - 9:15 am

205 IST Building

Office Hours

209 IST

Thursdays 5:30-6:30pm and by Appointment

Instructor

Dan Coughlin, Ph.D.

Director Software Development, ITS

dmc186@psu.edu

412-716-3586

It's ok to text me, include your name so I know who it is. I'm quite responsive to email.

Undergraduate Learning Assistants

Jackson Houser

jsh5452@psu.edu

Office Hours: Tuesdays, 7-9pm 110 IST

Matthew Barnes

myb5383@psu.edu

Office Hours: Wednesdays, 7-9pm 110 IST

Required Text

- Kurose, J. & Ross, K. (2012). *Computer Networking: A Top-Down Approach* (6th ed.). Pearson. ISBN 978-0132856201

Technical Specifications and Requirements

You will be required to utilize a number of technical systems to accomplish your goals in this course. All required hardware and software will be made available to you on the computers in the classrooms in the IST Building. It may be possible for you to also accomplish some of these tasks remotely and from your own computer. However, it is not the responsibility of the instructor or TA to troubleshoot your computer, your home network or your software problems. If you have difficulty that you are not able to resolve, please use the systems provided for you in the classroom.

Assignments & Grading

Course Grading Breakdown

Grading Category	Percentage of Final Grade
Labs	30%
Exams	30%
Group Projects	20%
Attendance	10%
Quizzes	10%
TOTAL	100%

Late Work

Assignments are due on the dates provided on the syllabus. However, I will accept work late, but I will assess a penalty of 10% for each day the work is turned in late, to a maximum of 7 days. After 7 days, the "key" or right answers will be posted, and no late work will be accepted after that point. Submit the late work to the drop box on Canvas and email "All Course Faculty" so that we know it's there.

Grading Scale

Letter grades will be assigned based on the following scale:

A	93% to 100%
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A-	90% to 92.9%
B+	87% to 89.9%
B	83% to 86.9%
B-	80% to 82.9%
C+	77% to 79.9%
C	70% to 76.9%
D	60% to 69.9%
F	less than 60%

Course Schedule

At the bottom of the syllabus is a rough outline of the week-to-week course schedule. The instructor (that's me, Dan) may modify the schedule. If I do so I will post updates to Canvas and announce them in class, possibly in Haiku format if you're lucky.

Course Policies

Attendance

Attendance will be taken each class period via the name card. You will need to initial the name card for each day of the class. This process will be explained in the first class session. Attendance will be counted for 3 points for each of the class sessions to a maximum of 100 points.

Excused absences for official university travel (sports teams, clubs, etc.), religious observance and for out-of-town interviews for internships or jobs **can be REQUESTED one week prior to the class period** by emailing "all course faculty" in Canvas. For cases of illness, injury or

family emergency, excused absences are requested the same way, prior to the end of the day of the class.

Academic Integrity

The College of IST is committed to maintaining academic integrity in this and all other courses it offers. IST takes academic integrity matters seriously. Academic integrity - scholarship free of fraud and deception - is an important educational objective of Penn State. Academic dishonesty can lead to a failing grade or referral to the [Office of Judicial Affairs \(Links to an external site.\)](#). Academic dishonesty includes, but is not limited to:

- Cheating
- Plagiarism
- Fabrication of information or citations
- Facilitating acts of academic dishonesty by others
- Unauthorized prior possession of examinations
- Submitting the work of another person or work previously used without informing the instructor and securing written approval
- Tampering with the academic work of other students

In cases where academic integrity is questioned, [Penn State's policy on academic integrity \(Links to an external site.\)](#) requires that the instructor give the student notice of the charge as well as the recommended sanction. Procedures allow the student to accept or contest the charge through discussions with the instructor. If a student chooses to contest, the case will then be managed by the respective College or Campus Academic Integrity Committee. If a disciplinary sanction also is recommended, the case will be referred to the [Office of Judicial Affairs \(Links to an external site.\)](#).

All Penn State colleges abide by this Penn State policy, but review procedures vary by college when academic dishonesty is suspected. Information about Penn State's academic integrity policy and college review procedures is included in the information students receive upon enrolling in a course.

Additionally, students enrolled at Penn State are expected to act with civility and personal integrity; respect other students' dignity, rights, and property; and help create and maintain an environment in which all can succeed through the fruits of their own efforts. An environment of academic integrity is requisite to respect for self and others, and a civil community.

For more information on academic integrity at Penn State, please visit one of the following URLs:

- <http://www.psu.edu/dept/oue/aappm/G-9.html> (Links to an external site.)
- <http://www.sa.psu.edu/ja/> (Links to an external site.)

Any violation of academic integrity will be investigated, and where warranted, punitive action will be taken. For **every** incident when a penalty of any kind is assessed, a report must be filed.

Accommodating Disabilities

Penn State encourages academically qualified students with disabilities to participate in its educational programs. We are committed to equal opportunity in our admissions policies and procedures and are dedicated to providing reasonable accommodations for qualified students.

Penn State students seeking special services or academic accommodations through Penn State must self-disclose their need for these services or accommodations to the or Penn State's Office for Disability Services (ODS). [Contact Penn State's Office for Disability Services](#) (Links to an external site.)(ODS).

To be eligible for academic accommodations through ODS, students must have a documented disability as defined by the Rehabilitation Act of 1973 or the Americans with Disabilities Act (ADA) of 1990. [Learn more about the ODS eligibility requirements](#) (Links to an external site.).

The University is responsible for making all its programs and services available to all students. The Office for Disability Services acts in an advisory capacity for all Penn State locations, including the World Campus. The World Campus will work with ODS to make reasonable academic adjustments or accommodations for eligible World Campus students.

Penn State's guidelines for appropriate documentation—and the verification forms necessary for each disability category—may be obtained from the "[Documentation Guidelines and General Information for Students with Specific Conditions](#) (Links to an external site.)" section of the ODS Web site. For more information, contact [ODS](#) (Links to an external site.).

Americans with Disabilities Act: IST welcomes persons with disabilities to all of its classes, programs, and events. If you need accommodations, or have questions about access to buildings where IST activities are held, please contact us in advance of your participation or visit. If you need assistance during a class, program, or event, please contact the member of our staff or faculty in charge. Access to IST courses should be arranged by contacting the Office of Human Resources, 332 Information Sciences and Technology Building, (814) 865-8949.

Nondiscrimination and Harassment

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identity or veteran status. Discrimination or harassment against faculty, staff or students will not be tolerated at The Pennsylvania State University. You may direct inquiries to the Office of Multicultural Affairs, 332 Information Sciences and Technology Building, University Park, PA 16802; Tel 814-865-0077 or to the Office of Affirmative Action, 328 Boucke Building, University Park, PA 16802-5901; Telephone: 814-865-4700/V, 814-863-1150/TTY. For reference to the full policy: <http://guru.psu.edu/policies/AD42.html> (Links to an external site.)

University-Wide Emergencies

In the case of a University-wide emergency, please refer to official university communication channels for information regarding campus closures and cancelations. For more general information about the emergency situation, please refer to: <http://news.psu.edu> (Links to an external site.). You can also follow Penn State on Twitter http://twitter.com/penn_state (Links to an external site.) and on Facebook at <http://www.facebook.com/pennstate> (Links to an external site.) for up-to-the minute information during emergencies.

PSUAlert is available at <http://psualert.psu.edu/> (Links to an external site.). This is a service designed to alert the Penn State community via text messages to cell phones when situations

arise on campus that affect the ability of the campus - students, faculty and staff - to function normally.

Ethical Use of Course Content

The content provided in this course can be used for educational purposes to understand cyber security concepts and techniques. It can also be used for nefarious purposes. Students are expected to use the course content for their own edification only and shall not apply this knowledge except in the classroom, on specific systems (such as the virtual lab) and only for the purposes defined by the instructor.

Any use of the course's content that is performed without expressed, written permission of the system's owner may be in violation of Penn State University policies as well as local, state and federal laws. The instructor will cooperate fully with all university investigations and the requests of all law enforcement agencies in investigations against students in the course.

Date	Details
Tue Jan 12, 2016	<u>Syllabus, Chapter 1 (1.1-1.2)</u>
Thu Jan 14, 2016	<u>Chapter 1 (1.3-1.4)</u>
Tue Jan 19, 2016	<u>Chapter 1 (1.5-1.7)</u>
Thu Jan 21, 2016	<u>L01: Chapter 1 Quiz</u> <u>Chapter 2</u>
Tue Jan 26, 2016	<u>Chapter 2</u>
Thu Jan 28, 2016	<u>In class Lab work</u>
Sun Jan 31, 2016	<u>Lab 1: Introduction to CloudShark Dropbox</u>
Tue Feb 2, 2016	<u>Chapter 3</u>
Thu Feb 4, 2016	<u>Chapter 3</u>
Tue Feb 9, 2016	<u>In Class Lab Work</u>

Date	Details
Thu Feb 11, 2016	<u>Chapter 4</u>
Sun Feb 14, 2016	<u>Lab 2: TCP Analysis with CloudShark Dropbox</u>
Tue Feb 16, 2016	<u>Chapter 4</u>
Thu Feb 18, 2016	<u>Quiz 2: Chapter 2 - 4</u> <u>Chapter 5</u>
Tue Feb 23, 2016	<u>In class lab work</u>
Thu Feb 25, 2016	<u>Chapter 5</u>
Sun Feb 28, 2016	<u>Lab 3: CloudShark ARP and Ethernet Dropbox</u>
Tue Mar 1, 2016	<u>Exam 1</u> <u>Exam 1: Chapters 1 - 5</u>
Tue Mar 15, 2016	<u>Chapter 6</u>
Thu Mar 17, 2016	<u>Chapter 6</u>
Tue Mar 22, 2016	<u>Chapter 7</u> <u>Quiz 3: Chapter 6</u>
Thu Mar 24, 2016	<u>In class lab work</u>
Sun Mar 27, 2016	<u>Lab 4: DNS in CloudShark Dropbox</u>
Tue Mar 29, 2016	<u>Chapter 7</u>
Thu Mar 31, 2016	<u>Chapter 8</u>
Tue Apr 5, 2016	<u>Chapter 8</u>
Thu Apr 7, 2016	<u>Quiz 4: Chapter 7, 8</u> <u>Chapter 9</u>
Tue Apr 12, 2016	<u>In class lab work</u>

Date**Details**

Thu Apr 14, 2016

[Chapter 9](#)

Sun Apr 17, 2016

[Lab 5: DHCP in CloudShark Dropbox](#)

Tue Apr 19, 2016

[Exam 2](#)

[Exam 2: Chapters 6 - 9](#)

Mon Apr 25, 2016

[Group Presentation Dropbox](#)

Tue Apr 26, 2016

[Group Assignment Presentation](#)

Thu Apr 28, 2016

[Group Assignment Presentation](#)

[Class Attendance](#)
