Purpose of Course

Acquire communication concepts and vocabulary; explore protocol organization, analysis and examples; develop simple distributed programs; review some of the social and economic aspects of networking.

Material

Required Texts
James Kurose Keith Ross Computer Networking: A Top-Down Approach. 8th Edition. (Other editions are also fine).

Other Reference Texts
An Introduction to Computer Networks by Peter L. Dordal. Latest edition available online for free

Grading Scheme

<table>
<thead>
<tr>
<th>Grading Scheme</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>5% Class Participation (BONUS)</td>
<td></td>
</tr>
<tr>
<td>20% Homework Assignments (4)</td>
<td></td>
</tr>
<tr>
<td>35% Programming Assignments (4)</td>
<td></td>
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<tr>
<td>30% Exams (2), 15% each</td>
<td></td>
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<tr>
<td>5% Final Exam (take-home)</td>
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<tr>
<td>10% Mini-project</td>
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</tbody>
</table>

Grading Scale

<table>
<thead>
<tr>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>&gt;= 90 A</td>
</tr>
<tr>
<td>&gt;=80 B</td>
</tr>
<tr>
<td>&gt;= 70 C</td>
</tr>
<tr>
<td>&gt;= 60 D</td>
</tr>
<tr>
<td>&lt;60 F</td>
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</tbody>
</table>

Curving is at the discretion of the professor.

Late Policy

Brightspace is where all the Homework assignments, and Programming Assignments (Lab) will be submitted. You may also be asked to submit your assignments through Github. Late Homework Assignments and Lab will be accepted but with penalty. The late submission made within two days will receive 15% penalty, followed by additional 10% penalty for each day up to two days. After that, assignments (HW and labs) will not be accepted.
Even if your work is incomplete, please submit your assignment so you can receive partial credit for the work you did complete.
Extensions (with no penalty) are only provided to students with DSP accommodations, or in the case of exceptional circumstances.
Submission times are rounded up to the next day. That is, 2 minutes late = 1 day late.

Mini-project

Each graduate student is assigned a topic from the given list of research papers/material, and are asked to read the paper/material and other related work on the same topic and finally prepare presentation slides, notes, and deliver talk. Please bear in mind that your audience are undergraduate students, hence you should be able to discuss technical details based on what they know so far in the course. Please check D2L Mini-project module for further details.
<table>
<thead>
<tr>
<th>Week</th>
<th>Course Syllabus</th>
<th>Assignment due dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Course Syllabus</td>
<td>PA1 (due Feb 13 by 11:59 pm)</td>
</tr>
<tr>
<td></td>
<td><strong>Introduction to Computer Networks</strong></td>
<td><strong>PA1 (due Feb 13 by 11:59 pm)</strong></td>
</tr>
<tr>
<td>Week 2</td>
<td>Introduction to Computer Networks (contd.)</td>
<td><strong>PA1 (due Feb 13 by 11:59 pm)</strong></td>
</tr>
<tr>
<td>Week 3</td>
<td><strong>Introduction to Computer Networks</strong></td>
<td><strong>HW1 (due Feb 8 by 11:59 pm)</strong></td>
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<tr>
<td></td>
<td><strong>Application Layer</strong></td>
<td><strong>HW1 (due Feb 8 by 11:59 pm)</strong></td>
</tr>
<tr>
<td>Week 4</td>
<td><strong>Application layer</strong></td>
<td><strong>HW2 (due Feb 29 by 11:59 pm)</strong></td>
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<tr>
<td></td>
<td><strong>Socket Programming</strong></td>
<td><strong>PA2 (due Mar 5 by 11:59 pm)</strong></td>
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<tr>
<td>Week 5</td>
<td><strong>Application layer</strong></td>
<td><strong>PA2 (due Mar 5 by 11:59 pm)</strong></td>
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<tr>
<td>Week 6</td>
<td><strong>Transport Layer</strong></td>
<td><strong>PA3 (due Apr 16 by 11:59 pm)</strong></td>
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<tr>
<td>Week 7</td>
<td><strong>Transport Layer</strong></td>
<td><strong>PA3 (due Apr 16 by 11:59 pm)</strong></td>
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<tr>
<td>Week 8</td>
<td><strong>Transport Layer</strong></td>
<td><strong>PA3 (due Apr 16 by 11:59 pm)</strong></td>
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<tr>
<td></td>
<td><strong>Exam 01</strong></td>
<td><strong>PA3 (due Apr 16 by 11:59 pm)</strong></td>
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<tr>
<td>Week 9</td>
<td><strong>Spring Break</strong></td>
<td><strong>Exam 01</strong></td>
</tr>
<tr>
<td>Week 10</td>
<td><strong>Transport Layer</strong></td>
<td><strong>HW3 (due Apr 4 by 11:59 pm)</strong></td>
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<tr>
<td>Week 11</td>
<td><strong>Transport Layer</strong></td>
<td><strong>HW3 (due Apr 4 by 11:59 pm)</strong></td>
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<tr>
<td></td>
<td><strong>Easter Holiday</strong></td>
<td><strong>HW3 (due Apr 4 by 11:59 pm)</strong></td>
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<tr>
<td>Week 12</td>
<td><strong>Network Layer</strong></td>
<td><strong>HW4 (due May 2 by 11:59 pm)</strong></td>
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<tr>
<td>Week 13</td>
<td><strong>Network Layer</strong></td>
<td><strong>HW4 (due May 2 by 11:59 pm)</strong></td>
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<tr>
<td>Week 14</td>
<td><strong>Network Layer</strong></td>
<td><strong>PA4 (due May 2 by 11:59 pm)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Link Layer</strong></td>
<td><strong>PA4 (due May 2 by 11:59 pm)</strong></td>
</tr>
<tr>
<td>Week 15</td>
<td><strong>Link Layer</strong></td>
<td><strong>Exam 02</strong></td>
</tr>
<tr>
<td>Week 16</td>
<td><strong>Network Security</strong></td>
<td><strong>Exam 02</strong></td>
</tr>
<tr>
<td>Week 17</td>
<td><strong>Final Exam &amp; Masters Presentation</strong></td>
<td><strong>May 7 (1 - 3 pm) @ STEM 316</strong></td>
</tr>
<tr>
<td></td>
<td>All dates are tentative except final exam</td>
<td><strong>May 7 (1 - 3 pm) @ STEM 316</strong></td>
</tr>
</tbody>
</table>
Catalog Description

Computer communication and networking. Network organization and operation. Network architecture including hardware, software, protocols, and analysis. Example and proposed systems including LANs, WANs, and the Internet. Network applications and interfaces, security and integrity issues.

Program Learning Outcomes

Program learning outcomes define the knowledge, skills, and abilities students are expected to demonstrate upon completion of an academic program. These learning outcomes are regularly assessed to determine student learning and to evaluate overall program effectiveness. Students majoring in the Department of Computer Science may access program learning outcomes at http://www.sfasu.edu/academics/colleges/sciences-math/computer-science/about/accreditations

Student Learning Outcomes

In general, SLOs in a course are specific and include the exact knowledge, skill or behavior taught in the course in support of the more global PLOs. For additional information on meaningful and measurable learning outcomes, see: https://www.sfasu.edu/academics/colleges/sciences-math/computer-science/about/accreditations

Course Requirements

Students are expected to attend classes and ensure they have understood the material being taught. Students are encouraged to ask questions and get their difficulties resolved while in class. There will be regular homework assignments(04), programming assignments(04), final exam (01) and examinations(02) to test the student understanding of the material. The grade percentage to these components are specified in the Grading Scheme above.

Exam Note

Examinations are weighted at 35% of the overall course grade. Valid student ID cards must be presented on each examination day. (No ID... No exam...Grade of zero)
There are no exemptions from the final examination and no changes in taking the final examination. Check the final exam time. If the final exam time is a problem, you need to drop this course.

Course Calendar

This course meets for a minimum of 37.5 lecture contact hours during the semester, including the final exam. Students have weekly reading assignments. Students are required to complete periodic homework assignments, and 2-3 periodic exams in addition to the final exam. Students are expected to prepare for any class assignments or quizzes over the material covered in class or in the reading material. Successful completion of these activities requires at eight additional hours of outside of classroom work each week.

Course Contact Hours and Study Hours

Meets 3 hrs/wk for 16 weeks. This is a problem-oriented class with homework problems and programming assignments. The lecture has 3 hours of contact time each week and the work outside of class each week will average 8 hours a week in development, analysis, and valida- tion of codes, understanding the theory undergirding computer networks, reading the required text, and preparing and completing course assessments.

Per SFA policy 5.4, this schedule and chosen exercises reflects that for each credit hour we will have one hour of faculty instruction with at least two hours of out-of-class student work per week. In other words, for an X credit hour class the student should expect X class hours of faculty instruction with 2 time X out-of-class hours of student work per week.

Asynchronous Minutes

The students are required to devote 150 minutes outside the instructional hours, where you will be asked to conduct independent study based on online resources (not covered in class) related to the course, and the material will be asked in the HW assignments(s), labs or exams.
Attendance Policy
Attendance and constructive class participation is expected. There is no specific grade for attendance. Students traveling for University business/events and those out sick will be excused after they turn in a medical note of absence or University related activity letter from the appropriate authorities.

Educational Objectives
Upon successful completion of the course, students should be able to:
1. Demonstrate knowledge of models, standards, and protocols for communication.
2. Develop skills in problem solving involving information (voice/video/data) transfer.
3. Apply queuing systems techniques to network design and performance.
4. Analyze protocol design, analysis, and examples in a layered framework.
5. Analyze data integrity and network security.
6. Recognize communications concepts and vocabulary.
7. Develop simple distributed computing programs.
8. Generalize Internet networking and application development skills.
9. Develop skills in research literature reviews and research presentations.

Course Content
The following topics is listed below:
- Overview of Teleprocessing and Data Communications (3)
- Transmission Fundamentals (3)
- Data Communication (5)
- Data Security and Integrity (7)
- Protocols (8)
- Local Area Networks (8)
- Wide Area Networks (5)
- Network Applications (3)
- Exams (3)

Withheld Grades Semester Grades Policy (A-54)
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. For additional information, go to https://www.sfasu.edu/docs/hops/02-206.pdf

Attendance
Seating assignments may be made, and roll will be taken regularly. If you come to class, you are expected to actively participate. If you are absent from class, please make sure to get notes from a classmate. Cell phones and other electronic communication devices must be turned off during class. Possession of a cell phone or other electronic communication device during an exam will result in an examination grade of zero. Students entering the classroom after the lecture has started should take a seat in the back of the room. An absence may be recorded in the event of leaving early or arriving late, lack of participation in class, or cell phone use during class. An active class participation includes actively listening to the lecture, asking questions, responding to the questions raised, engaging in positive discussion related to the topic with the instructor. The rubric for the 5% bonus class participation is given below:

<table>
<thead>
<tr>
<th>Total Absences</th>
<th>0</th>
<th>1-2</th>
<th>3-5</th>
<th>&gt;5</th>
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</thead>
<tbody>
<tr>
<td>Grade change</td>
<td>+5</td>
<td>+4</td>
<td>+2</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: The rubric above assumes that you have full class participation during attending the class.
Examination Policy
All class examinations are considered to be a major part of the course work upon which a large part of the course grade depends. There are NO make-up exams! Class examinations will be announced at least two classes prior to the examination. If you have a conflict with another university event, you must contact me well in advance of the examination. In case of an extreme emergency, contact me before the scheduled examination. Failure to do so may result in an examination grade of zero. There are no exemptions for the final examination and no changes in taking the final examination. All students must take the final exam. A zero on the final exam will result in an F in the course. Check the final examination time. If the final examination time is a problem, you need to drop this course. Once the first person has left the room on the day of an examination, no one else will be permitted to begin the exam.

Assignment Policy
All assignments are due at the announced time on the specified due date. Assignments may not be accepted late (see Assignment Late policy). If you have a conflict, please contact me in advance. You should turn in your homework and lab assignments done neatly, clearly, and to the best of your ability. Follow all the instructions given. You will lose points for failure to follow instructions. DO NOT slide any work under my office door or under the door to the Computer Science offices, or in my office mail box. Follow the instructions on the assignments on how to turn in your assignments. PLEASE NOTE: You may be given assignments during the last five class days of the semester. You may be asked to do your assignments in groups.

If any HW or lab assignments are not posted, then the previous graded HW or lab assignments will be considered and the grades will be distributed evenly.

Software Policy
Disciplinary action will be taken against individuals who perform unauthorized duplication of software or who are involved in the unauthorized use of duplicated software. Such action may make it impossible for you to successfully complete this course.

Computer Laboratory Usage
Students utilizing equipment in university computing laboratories are expected to read and abide by all posted policies for the laboratories. Please note that no children and no pets are permitted in university computing laboratories.

Drop Policy (Univ.)
The official university add/drop policy is located at:
https://www.sfasu.edu/docs/hops/04-103.pdf
If you have questions concerning registration, add/drop or the withdraw process, contact the Registrar at (936) 468-2501 or E-mail: REGISTRAR@SFASU.EDU. The Registrar is located on the 2nd floor of the Rusk building.

Acceptable Student Behavior
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, https://www.sfasu.edu/docs/hops/04-106.pdf). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic, or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom.

Computer Account Policy
All assignments that require the use of the University Computer must be done under the computer account that is assigned to you in this class. You should NOT do other class assignments in this account, and you should NOT do assignments from this class in other accounts. Failure to abide by the above statements will mean that you will received a grade of F in this course.
Special Accommodation Requests
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/

Students with special accommodation requests have the responsibility to immediately initiate a meeting with the instructor to discuss how the special accommodations will be provided. Students who are aware of these special needs at the beginning of the semester must inform the instructor in person before the twelfth class day about any class activity, which will require special accommodations.

Student Wellness and Well-Being
SFA values students’ overall well-being, mental health and the role it plays in academic and overall student success. Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, emotional well-being, alcohol and other drugs, identities, finances, etc. If you are experiencing concerns, seeking help, SFA provides a variety of resources to support students’ mental health and wellness. Many of these resources are free, and all of them are confidential.

On-campus Resources:
The Dean of Students Office (Rusk Building, 3rd floor lobby)
www.sfasu.edu/deanofstudents
936.468.7249
dos@sfasu.edu

SFASU Human Services Counseling Clinic
www.sfasu.edu/humanservices/139.asp
Human Services Room 202
936-468-1041

The Health and Wellness Hub “The Hub”
Location: corner of E. College and Raguet St.

To support the health and well-being of every Lumberjack, the Health and Wellness Hub offers comprehensive services that treat the whole person – mind, body and spirit. Services include:

- Health Services
- Counseling Services
- Student Outreach and Support
- Food Pantry
- Wellness Coaching
- Alcohol and Other Drug Education

www.sfasu.edu/thehub
936.468.4008
thehub@sfasu.edu

Crisis Resources:
Burke 24-hour crisis line 1(800) 392-8343
Suicide Prevention Lifeline 1(800) 273-TALK (8255)
Crisis Text Line: Text HELLO to 741-741

Academic Integrity
The Code of Student Conduct and Academic Integrity outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff and students to adhere to and uphold this policy.
Articles IV, VI, and VII of the new Code of Student Conduct and Academic Integrity outline the violations and procedures concerning academic conduct, including cheating, plagiarism, collusion, and misrepresentation. Cheating includes, but is not limited to: (1) Copying from the test paper (or other assignment) of another student, (2) Possession and/or use during a test of materials that are not authorized by the person giving the test, (3) Using, obtaining, or attempting to obtain by any means the whole or any part of a non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters without permission of the Faculty member, (4) Substituting for another person, or permitting another person to substitute for one’s self, to take a test, (5) Falsifying research data, laboratory reports, and/or other records or academic work offered for credit, (6) Using any sort of unauthorized resources or technology in completion of educational activities.

Plagiarism is the appropriation of material that is attributable in whole or in part to another source or the use of one’s own previous work in another context without citing that it was used previously, without any indication of the original source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one’s own academic work being offered for credit or in conjunction with a program course or degree requirements.

Collusion is the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on academic dishonesty, including disclosing and/or distributing the contents of an exam.

Misrepresentation is providing false grades or résumés; providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment for the purpose of obtaining an academic or financial benefit for oneself or another individual or to injure another student academically or financially.

Academic dishonesty using AI

Academic integrity is a core value of this course, and any form of academic dishonesty, including using artificial intelligence (AI) to cheat, will not be tolerated. Cheating with AI includes, but is not limited to, using AI-generated content for assignments or exams, using AI chatbots to communicate with others during exams, or using AI tools to generate responses to exam questions. Any student caught engaging in academic dishonesty using AI will face serious consequences, including but not limited to, failing the course and being reported to the appropriate academic authorities. It is important to remember that AI is a tool to assist in learning and not to replace it, and that academic dishonesty undermines the learning experience for everyone. Please feel free to reach out to me well in advance of the due date of assignments for which you may be using AI tools and I will be happy to discuss what is acceptable.