

Computer Communications

EEL 5718 Section 6152 or 1FE2 or 2FED

Class Periods: T: Period 10, 5:10-6:00pm, R: Period 10-11, 5:10-7:05pm

Location: Web

Academic Term: Fall 2020

Instructor:

Professor Yuguang ``Michael" Fang

Email Address: fang@ece.ufl.edu

Office Phone Number: (352) 846-3043

Office Hours: 4:00-5:00pm, T, R or by appointment (online or 435 NEB)

Teaching Assistant/Peer Mentor/Supervised Teaching Student:

Please contact through the Canvas website

- Mr. Xianhao Chen, xianhaochen@ufl.edu, via appointments

Course Description

This course introduces the principles and practice of computer networking, emphasizing data communication and the lower layers of the OSI and TCP/IP protocol architectures. (3 credits)

Course Pre-Requisites / Co-Requisites

EEL5718: Communication Systems and Components or equivalent and graduate level standing.

EEL 3834, COP 2271 or other programming equivalent, junior or senior level standing

Course Objectives

This course enables students to learn the fundamental concepts, principles and protocol design of computer or communications networks. The students will apply their knowledge of advanced mathematics, basic science and computer engineering to understand and evaluate the performance of communication networks.

These objectives will be achieved through:

1. Intuitive understanding of basic concepts and protocol design via daily life examples.
2. Independent projects on specific topic to gain deeper understanding
3. Formulation of mathematical problems to evaluate performance of computer or communications networks
4. Grasping basic concepts, techniques, and tools and developing skills to solve networking problems in practice.

Materials and Supply Fees

None.

Required Textbooks and Software

- Title: Communications Networks: Fundamental Concepts and Key Architectures
- Authors: A. Leon-Garcia and I. Widjaja
- Publication date and edition: 2003, 2nd edition, McGraw-Hill
- ISBN number: ISBN-10: 007246352X, ISBN-13: 978-007246352
- Remark: The lecture is based on the textbook, but does not really follow the textbook exactly, and thus any edition would do. However, homework problems are from the 2nd US edition, which may differ from international editions.

Recommended Materials

- Title: Computer Networks
- Authors: A. Tanenbaum
- Publication date and edition: any edition after 1st edition (the 2nd edition is in fact better)
- ISBN number:

- Title: Data & Computer Communications

Course Title, Prefix, and Number

Course Instructor and Academic Term

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- Authors: W. Stallings
- Publication date and edition: any edition, Prentice-Hall
- ISBN number:

Course Schedule

1. Overview of communications networks and services
2. Layering architectures
3. Physical layer fundamentals: data transmission, coding/decoding, and modulation/demodulation
4. Multiplexing and Switching
5. Data link control: error control and ARQ protocols
6. Multiple access control (MAC) protocols
7. Routing algorithms and protocols
8. Transport protocols
9. Congestion controls
10. LAN Technologies

Online Course Recording

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Attendance Policy, Class Expectations, and Make-Up Policy

This class will be presented online using Zoom and requires access to a working webcam and stable internet connection. I prefer that students keep their camera on during the class so that I can see you as I would during normal face-to-face classes. Studies show that if we can see each other's faces then we will have more engagement, more student success, and more faculty success. However, this is not a requirement as the quality of network connection may not allow us to do so (Yes, we could not address this problem during this course, but what you have learned will solve the problem ☺).

Excused absences must be in compliance with university policies in the Graduate Catalog (<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>) and require appropriate documentation.

Evaluation of Grades

****Assessment Guidance from the ECE Graduate Committee:** Course evaluation components should include:

1. At least one component that individually evaluates each student's understanding of course material and ability to apply concepts.
2. At least one evaluation activity that takes place in class.
3. When a project is involved, evaluation rubrics should be explicitly stated.
4. When team work is expected, individual student contribution verification method should be explicitly stated.

If an in-class exam is administered then 1 and 2 are fulfilled. In the case of a project, a project report that is graded per the stated evaluation rubrics and states which work was done by each student in the project team will address both 3 and 4.

Assignment	Total Points	Percentage of Final Grade
Homework Sets (10)	100 each	10%
Midterm Exam	100	35%
Final Exam	100	45%
Project	100	10%
		100%

Grading Policy

Overall average >90% is guaranteed an A, >80% is guaranteed at least B, etc. However, statistical curving will be used for both graduate and undergraduate students separately. There is no minus grade for graduate section.

No late homework is accepted.

More information on UF grading policy may be found at:

<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades>

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.ua.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.ua.ufl.edu/public-results/>.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any

condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@eng.ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.
<https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
<https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.
<https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: <https://care.dso.ufl.edu>.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.