Already uploaded in
Cyber campus

# Course Syllabus

*Computer Networking*

Joon Yoo

School of Computing, Gachon University

WINL
Wireless Intelligent Networking LAB

# General Information

- ❖ Instructor
  - ▪ Prof. Joon Yoo (유준)
  - ▪ Contact: College of IT (IT대학), #5-3, joon.yoo@gachon.ac.kr
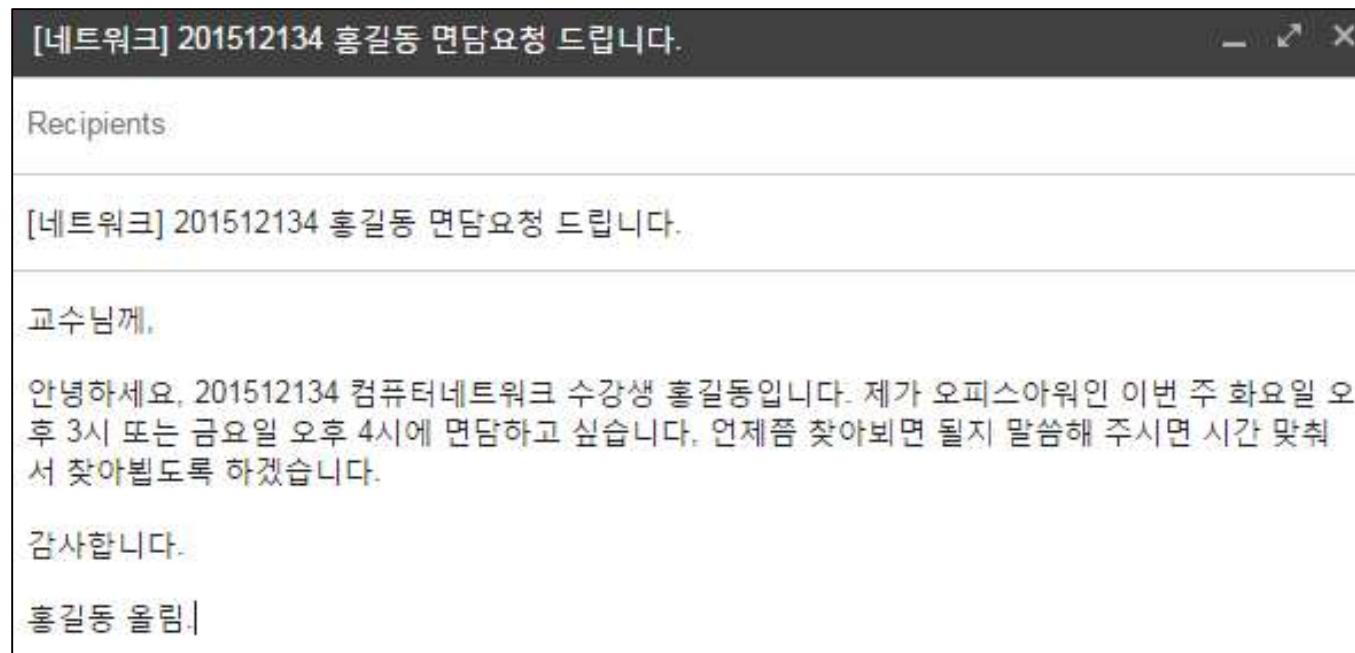  - ▪ Office hours: After class, Tue/Wed 3-5pm
    - · (by appointment)

- ❖ TA (Teaching Assistant, 조교)
  - ▪ Undergraduate TA: TBA (To-Be-Announced)

수업관련 질문: 수업조교 ➡ 담당교수

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# Contacting...

❖ <u>All contacts via E-mail</u>: with **[네트워크]** header in mail title
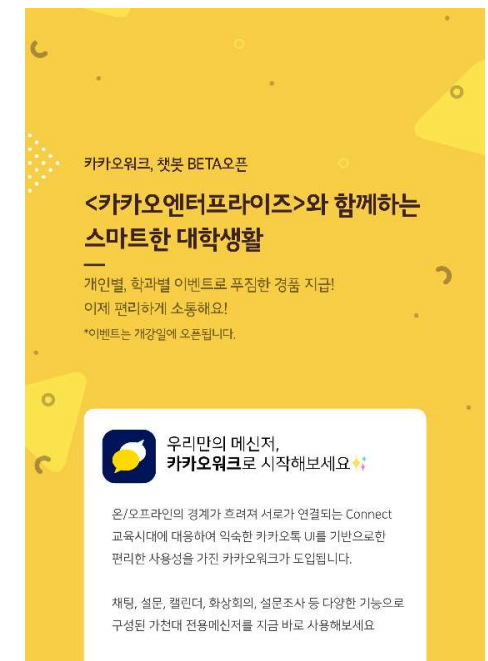  ▪ otherwise will be discarded

# Course Webpage

❖ Gachon Cyber Campus
- ▪ *Most* notices, class slides, homework will be posted at the cyber campus
- ▪ For Online Quizzes at beginning of class
- ▪ Homework submissions

❖ Kakaowork (카카오워크)  kakaowork
- ▪ Chatting Room – (emergency) notices
- ▪ In-class Q/A
- ▪ Please install (mobile or PC)

❖ If needed: Webex
- ▪ https://gachon.webex.com/meet/joon.yoo

카카오워크, 챗봇 BETA오픈
**<카카오엔터프라이즈>와 함께하는
스마트한 대학생활**
—
개인별, 학과별 이벤트로 푸짐한 경품 지급!
이제 편리하게 소통해요!
*이벤트는 개강일에 오픈됩니다.

우리만의 메신저,
**카카오워크**로 시작해보세요

온/오프라인의 경계가 흐려져 서로가 연결되는 Connect
교육시대에 대응하여 익숙한 카카오톡 UI를 기반으로한
편리한 사용성을 가진 카카오워크가 도입됩니다.

채팅, 설문, 캘린더, 화상회의, 설문조사 등 다양한 기능으로
구성된 가천대 전용메신저를 지금 바로 사용해보세요

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# Computer Networking

❖ English Course
  ▪ But, lecture in KOREAN (*iif.* all Korean students)
  ▪ Everything else in ENGLISH
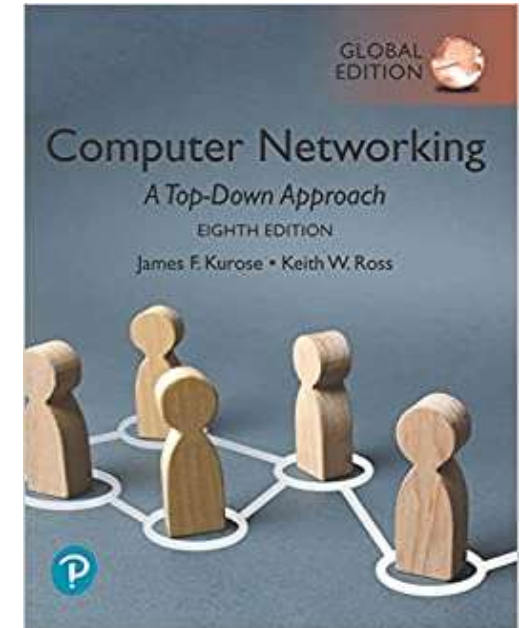    • Textbook, slides, exam/quiz, homework...

❖ **Prerequisites**
  ▪ Programming Assignments: **Java programming**

# Textbook

- ❖ Course Textbook:
  - ▪ Computer Networking: A Top-Down Approach **8th edition**, Jim Kurose, Keith Ross, Pearson International, **2021**
  - ▪ Mainstream, highly up-to-date
- ❖ FAQ 1: Can we use 7th (2018) edition?
  - ▪ Mostly similar, but some features added.
- ❖ FAQ 2: Can we use the Korean textbook?
  - ▪ Main reason: English, English, English, …
    - • General English vs. Technical English
    - • Open source community (e.g., Github)
    - • After you graduate… most technical documents are in English
    - • **Now or never!!!** It will get tougher as time goes…

# Textbook website

❖ https://gaia.cs.umass.edu/kurose_ross/index.php

# KAIST 학생 설문조사 결과

Q: 공부를 하는데 있어서 가장 도움이 됐던 학습방법은?
(복수선택허용)

지난학기에 공부를 하는데 있어서 가장 도움이 됐던 방법은 무엇이었나요?(복수응답)



Books in Korean
Tutoring
Recitation
Others

한글책 대여
튜터링
연습반
기타

0  10  20  30  40  50  60  70
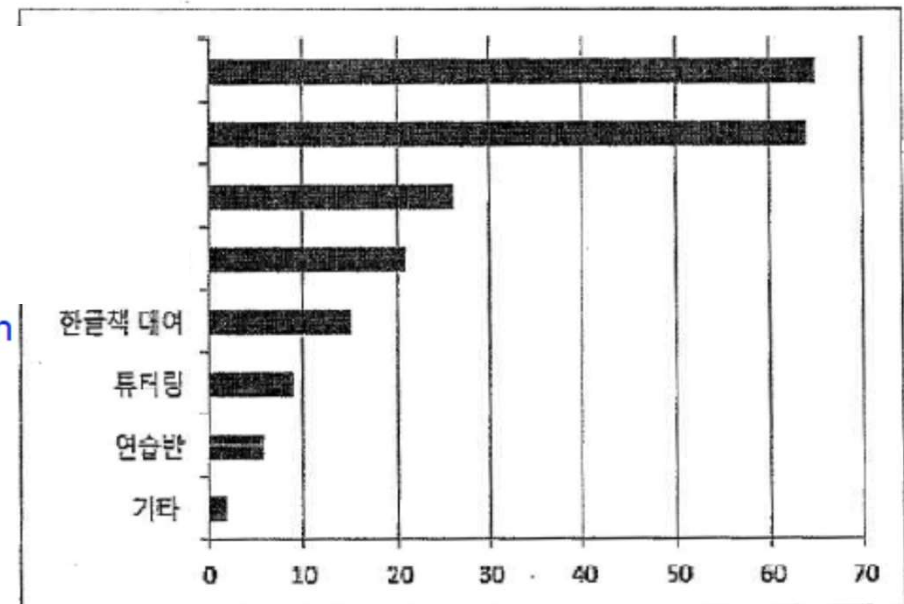
※일부 학생만 튜터링을 받으나 튜터링을 받은 학생비율이 고려되지 않은 그래프임

KAIST

KAIST 이태억 교수, "**4차산업혁명과 교육방식의 혁신**"

# In-class: Main point: speakOUT ▶ YouTube

❖ Be **INTERACTIVE** during class
   ▪ Do not be afraid to ask stupid **questions**. You are students.
   ▪ You may use kakaowork chatting

❖ **Discuss** with other classmates – during discussion sessions

❖ Why ask questions?
   ▪ Learn by listening: 5-30% efficiency
   ▪ Learn by speaking: 50-90% efficiency

*EBS 우리는 왜 대학에 가는가 5부

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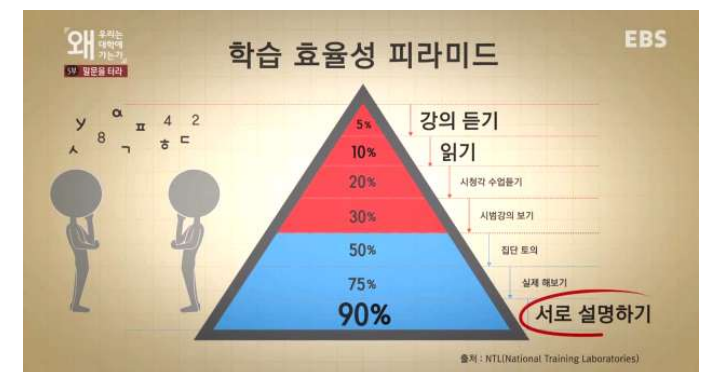
# Flipped Learning

❖ Motivation
  ▪ Why spend valuable time/money to come to school/classroom?
  ▪ Why not just take Internet on-line courses?
    · E.g., edX, Coursera, Stanford Online, 대학온라인강의(KOCW), …

❖ Flipped Learning
  ▪ Online Lecture + Student activities
    (Quizzes, Q/A, Discussions, …)

❖ Our Approach: Semi-flipped Learning
  ▪ Before/after class: Reading/Video, HW
  ▪ In class: Short quiz, Q/A, discussions
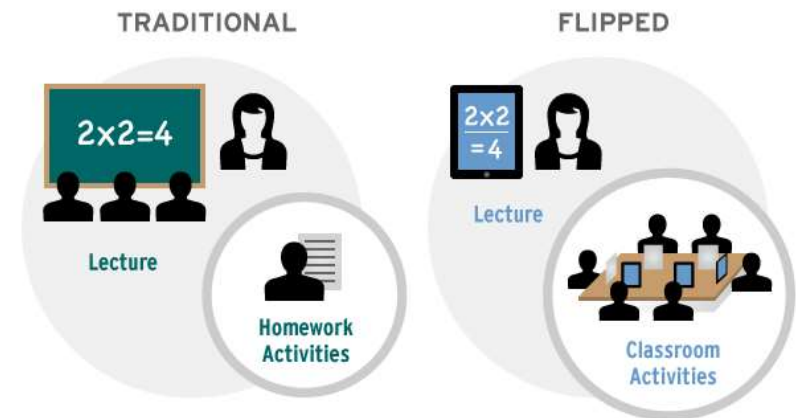
# Class Operations

❖ **Preparation** (예습)
- Pre-lecture Assignment
- Check: Bi-weekly quiz or homework

❖ **In-class Activity** (강의)
- Lecture (In-class & MOOC)
- Q/A

UNDERSTAND

❖ **Review** (복습)
- Discussions: After each chapter (ch. 1-7)

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# Preparation: Pre-lecture Assignments

❖ Pre-lecture Reading/Online Assignment

- Every week (given on Wednesday) there will be a Pre-lecture reading/online assignment – check class cyber campus
- Take online **Video lectures** from KOCW (online) class "Introduction to Computer Networking" (in Korean) or YouTube
- Reading assignments from your **Textbook**
- Check ✓
  - They will appear either in **homework** or next class **quizzes**
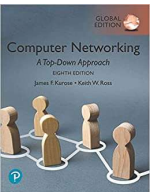
# Preparation: Homework

❖ Biweekly, Homework will be given (3-4 problems).

- Submit the homework to **<u>cyber campus</u>** by deadline (Tuesdays 10 AM). Late or copied homework will be given 0 pts. Homework will be roughly graded

❖ Homework due (deadline) schedule

First HW!!

| September | | | | | | |
|---|---|---|---|---|---|---|
| S | M | T | W | T | F | S |
| 2 | 30 | 31 | 1 | 2 | 3 | |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | |

| October | | | | | | |
|---|---|---|---|---|---|---|
| S | M | T | W | T | F | S |
| | | | | | | 1 |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 30 | 31 | | | | | |

Mid-term

| November | | | | | | |
|---|---|---|---|---|---|---|
| S | M | T | W | T | F | S |
| | | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | | | |

| December | | | | | | |
|---|---|---|---|---|---|---|
| S | M | T | W | T | F | S |
| | | | | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 |

Final-term

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# Preparation: Quiz

- Biweekly 5-min Quiz at beginning of Lecture
  - From **Pre-lecture assignments**
  - Use **cyber campus** – **need to be in-class!!**
  - Semester Quiz Schedule: 6 quizzes (around 4-5 mins, 3-4 problems)

First Quiz!!

### September
| M | T | W | T | F | S |
|---|---|---|---|---|---|
| 29 | 30 | 31 | 1 | 2 | 3 |
| 5 | (6) | 7 | 8 | 9 | 10 |
| 12 | 13 | 14 | 15 | 16 | 17 |
| 19 | (20) | 21 | 22 | 23 | 24 |
| 26 | (27) | 28 | 29 | 30 | |

(4, 11, 18, 25 in S column)

### October
| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | | | | 1 |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 30 | 31 | | | | | |

Mid-term

### November
| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | (1) | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | (15) | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | (29) | 30 | | | |

### December
| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 |

Final-term

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# In-class Lecture

❖ In-class Lecture + Online MOOC

❖ Online MOOC Schedule (tentative – may change)
  ▪ SW Excellence Program – At least 3-week MOOC classes

# Review: 7 Discussions (Active Learning)



- ❖ After each Chapter
  - ▪ We will cover 7 chapters, thus we have 7 discussions
- ❖ 30-min <span style="color:red">Discussion</span> + 20-min <span style="color:red">Presentation</span>
  - ▪ You will have 30-minute in-class group discussions
  - ▪ You solve/discuss several problems together
  - ▪ You present your discussions/answers to others
  - ▪ Professor will give answers after each presentation

- ❖ Every Wednesdays, <span style="color:red">Pre-lecture assignment</span> will be posted
  - ▪ Reading + Video lecture
  - ▪ Contents will be in Quiz or Homework

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# Java Socket Programming (Active Learning)



❖ Socket Programming Assignments
- Socket programming based on Java (2-3 times)
- TA will be in charge

❖ A steppingstone to Mobile Programming (Android)






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# Grading

❖ Grading Policies
- Midterm examination: 25%
- Final examination: 25%
- Programming Assignments: 10%
- **Quizzes** + Homework: 15%
- **Discussions**: class attitude, Q/A: 15%
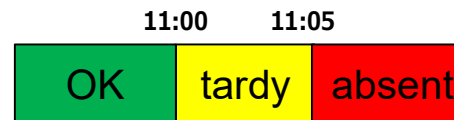- Attendance: 10%

# Course Regulation: Attendance

❖ School Regulations
  ▪ Absent in more than 4 class weeks will receive an Ⓕ for the course
  ▪ Cheating in exams will receive an Ⓕ for the course

❖ Attend your classes!
  ▪ 2 strikes you're out: **1 strike is OK**
    · 0-1 absence: no degrade
    · 2+ absences: degrade
  ▪ 3 tardiness = 1 absence
    · tardiness cutline: **5 minutes**

| | 11:00 | 11:05 |
|---|---|---|
| OK | tardy | absent |



❖ Only exception:
  ▪ **Documented** medical, emergency
    · *ex*: 병원진료확인서, 신체검사 통지서 등.
  ▪ submit to TA via E-mail
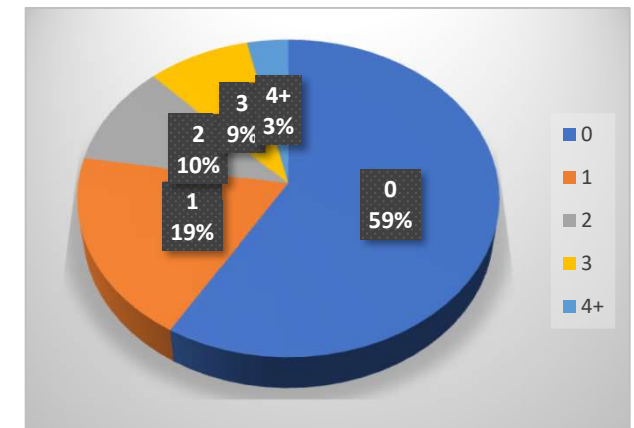
# Attendance

❖ We will be using "스마트출결앱" at the beginning of class
  ▪ 붙임2학생용_스마트출결앱_간편_매뉴얼.pdf

❖ <u>No</u> attendance check for MOOC classes

# Course Outline

- Week 1-2      Ch 1. Computer Networks and the Internet
- Week 2-3      Ch 2. Application Layer (PA1)
- Week 4-5      Ch 4. The Network Layer: Data Plane (PA2)
- Week 6-7      Ch 5. The Network Layer: Control Plane
- Week 8        Mid-term Exam
- Week 9-11     Ch 6. The Link Layer (PA3)
- Week 12-13    Ch 3. Transport Layer
- Week 14       Ch 7. Wireless
- Week 15        Final Exam

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# Summary

❖ In-class + MOOC Lecture

❖ Textbook: Computer Networking: A Top-Down Approach 8th edition. English textbook recommended.

❖ Flipped Learning
  ▪ Tuesdays: Quiz (bi-weekly) or HW due (bi-weekly) + Lecture
  ▪ Wednesdays: 50-min lecture, <u>Pre-lecture assignment</u>
  ▪ Next Tuesday: <u>Quiz or HW due</u>
  ▪ Discussions + Presentation after each chapter (7 times)

❖ 2-3 Java socket programming assignments (No Term projects)

❖ Attendance excuse
  ▪ Submit document to TA

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# At the end of the semester...

❖ Answer to the question: "How does the Internet work?"
- How Does the Internet Work? - Glad You Asked S1
  - Watch this YouTube video before next class: https://youtu.be/TNQsmPf24go

❖ Expand your interest into future technologies
- 5G/6G Mobile
- Internet of Things (IoT)
- Distributed Systems
- Computer Security





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