

Western Illinois University
School of Computer Science
CS 556 Advanced Computer Network, Fall 2019

Instructor: Kim, Yeongkwun, Ph.D.
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Office: Stipes 447 F (**phone:** 298-1351)
Office Hours:

Tue: 1:00 PM – 1:50 PM
Wed: 2:00 PM – 4:30 PM
Thursday: 1:00 PM ~ 1:50 PM
or Email

URL: <http://faculty.wiu.edu/Y-Kim2/>
Lecture Hour: T/Th 11:00 AM – 12:15 PM

Textbooks: Recommended

- Computer Networking: A Top-down Approach (7th Ed.) by Kurose & Ross, Pearson
- Mobile Communications (2nd Ed.) by Jochen Schiller, Addison Wesley

References:

- Wireless Communications and Networks by William Stallings, Prentice Hall
- IETF RFCs: www.ietf.org
- ETSI Standards: www.etsi.org
- ITU-R Recommendations : www.itu.org
- 3GPP & 3GPP2

Course Objectives

Provide the student with an overall perspective of mobile communications by covering signals, signal propagation, multiplexing techniques, modulation, spread spectrum and mobile communication protocol stacks especially, mobile network layer and mobile transport layer. Also will this course introduce wireless mobile communication systems such as GSM and UMTS. Provide also mobility issues in several applications that students can have right vision for the mobility properties in the wireless communications. As a current hot topic, multimedia networking applications also expose to students. Also improve technical writing skills.

Method of Instruction: Lecture and seminar

Method of Evaluation

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|---|------------------|
| ▪ Homework Assignments: | 10 points |
| ▪ Exam #1: Sept. 17 | 25 points |
| ▪ Exam #2: October 22 | 25 points |
| ▪ Final Exam: University Final Exam Schedule | 30 points |
| ▪ Research project: | 10 points |
| ▪ Letter grade : | |
| ▫ A: ≥ 90 | |
| ▫ B: ≥ 80 | |
| ▫ C: ≥ 70 | |
| ▫ D: ≥ 60 | |
| ▫ F: < 60 | |

Major topics to be discussed:

- Wireless transmission
 - Radio Frequencies
 - Signal and signal propagation
 - Multiplexing techniques
 - Modulation techniques
 - Spread spectrum

- Medium Access Control
- Telecommunications Systems
- Wireless LAN
- Protocol suite
- Mobility support
- Multimedia Networking

Note 1: Point ranges for letter grades will be based on a number of factors, including absolute and relative performance. Instructor reserves the right to lower the scale if performance warrants it.

Note 2: Written homework should be clearly **TYPED**.
For written homework, you must write up your own solutions and may neither read nor copy other student's solutions.

Note 3: All assignments are due at **the first 5 minutes of the class**. Late assignments will be given 20 % penalty **BUT WILL NOT** be accepted after 24 hours of the due.
No excuse PRINT problem! No email submission allowed!

Note 4: The topics for the research project are **OPEN** but **SHOULD BE** related to the wireless and mobile communications.

▪ **Topic selection due: September 26**

1. Each group of three students needs to choose a topic for their presentation.

▪ **Class presentation: Schedule will be TBD**

1. Each presentation will take 15 min. + 5 min. Q&A session

Note 5: No Make-up Exam will be given without **documented proof** of serious hardship. Student must contact the instructor immediately to arrange new schedule.

Note 6: One or two pop quizzes may be administered during the semester.

Note 7: The topics for the research project and due date will be announced later.

Note 8:

- I check email throughout the day from Monday through Friday, but please allow 24 hours for a response from me during business days. Between Friday evenings and Sunday nights, I rarely check email. So if you send me an email over the weekend, you will most likely receive a response from me the following Monday morning.

- To ensure that your email reaches me safely, please put **CS556** or **Advanced Computer Network** in the "subject" header at all times. Remember to be polite and respectful, and be careful and attentive to how the email is written students are expected to use professional language and tone in all communications with the instructor, including e-mail correspondences.

- **If you do not receive an e-mail response from me within the specified response times above, take another look at the construction of your e-mail.** The tardiness or lack of a response on our part may be the result of an inattention to the prescribed method of professional e-mail correspondence. In that case, please revise with proper attention to e-mail etiquette and resend the e-mail.

Note 8: Class attendance is FULLY student responsibility.

- Active class participation is expected
- You may ask anytime
- You are expected to attend all classes

Note 9:

Cheating - It is expected that students will conduct themselves with integrity. If you cheat or assist others in cheating, you violate a trust. Cheating includes but is not limited to the following: taking exams for another person, copying files or lending your storage device to another student, turning in assignments that have been used in other classes, or purchasing or selling assignments or exam materials. If you cheat, some or all of the following actions will be taken: You will receive a lower point score up to and including a zero for that particular assignment or exam. A report of the incident may be forwarded to the Dean for a full investigation. The Dean may file the report in your permanent record and/or take further disciplinary action. Please refer to the **Academic Dishonesty Policy** at <http://www.wiu.edu/policies/acintegrity.php>

Additionally, every student should know his/her rights in the classroom and the university and should refer to **Student Rights & Responsibilities:** <http://www.wiu.edu/policies/stucode.php> for information on your rights and responsibilities.

Plagiarism:

It is assumed that students will learn from each other and in many cases exchange ideas regarding projects, papers and assignments. It is also required that student complete their assignments as an individual effort. Copying retyping or taking other's work and turning it in as your own will result in a zero for the material and may further be dealt with using the University's established plagiarism policy.

Remarks:

- **The contents on this syllabus can be changed with advance notification.**