CMPE 257: Wireless and Mobile Networks

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Lecture 1

CMPE 257 Spring’15
Welcome to CE 257!

• Class information:
  – When: Tue, Th 2-3:45.
  – Where: E2 506
  – Class Web page:

https://courses.soe.ucsc.edu/courses/cmpe257/Spring15/01
About the Instructor

• Katia Obraczka.
  – Office: E2 323.
  – E-mail: katia ”at” soe.ucsc.edu

• Internetworking Research Group (i-NRG): E2 311

• For more info, visit:
  – http://inrg.soe.ucsc.edu
Class Web Page

• Check class Web page frequently!
  – Lecture notes.
  – Readings.
  – Assignments.
  – News.
  – Project information.
Course Focus

• From the Web page:

“This class covers various topics relevant to wireless networking and mobile computing. It focuses on communication protocols for wireless networks from medium-access control to end-to-end transport...”
Pre-requisites

• CE 252A.
• Or instructor’s consent (need permission code).
Audience and Requirements

• Advanced grad class.
• Lots of reading.
• Programming project: strong programming skills.
• In-class discussions and student participation is a must!
• In-class student presentations.
Course Format

• Lectures + student presentations.
• Material based on research papers.
  – No textbook required.
• In-class discussions are critical.
  – Papers must be read before each class.
Grading

- Grades will account for:
  - In-class presentation: 20%
  - Reading reports: 10%
  - Project: 40%
  - Exam: 30%

Disclaimer: Don’t expect automatic B’s!
Student Responsibilities: Academic Integrity

• All work must be individual (unless otherwise agreed with instructor).
  – OK to have discussions on ideas but turn in your own work.
  – Ask instructor if there are any questions.
  – For more info, go to:
    www.ucsc.edu/academics/academic_integrity/
Student Responsibilities

• Papers to be covered in class must be read before lecture.
  – Reading reports: brief summaries of the papers need to be submitted prior to class.
  – Have reading reports handy during class to help in discussions.

• Web page must be checked frequently for updates.
Readings

• Bulk of readings based on research papers.
• Reference textbook:
Reading Reports

• Due before class when paper is covered.
• Submit via e-mail.
  – Plain text or pdf attachment
  – Submit to cmpe257s15@soe.ucsc.edu.
• Have it handy in class to guide discussion/participation.
Reading Reports

• What is the problem being solved?
• Why is it interesting, relevant, and/or important?
• What approaches existed at the time that this work was done?

• Why existing approaches were not adequate?
• What is the proposed approach and how does it compare to earlier approaches?
• What are the main strengths and weaknesses of the paper/proposed approach?
Course Outline (tentative)

• Introduction.
• Wireless MAC.
• Network layer issues.
  – Unicast and multicast routing.
  – Wireless internetworking.
• E2E protocols.

• Others:
  – Mobility management.
  – New architectures.
    • DTN.
    • SDN.
    • Hybrid networks.
    • CCN.
  – Security.
  – Energy management.
  – Topology management.
Project

• Project is a major part of the grade.
• Chance to get started in possible thesis research directions.
• List of suggested projects will be provided.
  – Implementation.
  – Simulation.
  – Project suggestions welcome!
    • Need instructor’s approval.
• Project proposal required.
Project Proposal

• Project proposal should contain:
  – Project title.
  – Motivation.
  – Brief description of proposed approach.
  – Basic design.
  – Evaluation and testing methodology.
  – Demo plan.
Student Presentations

- Student presentations will happen later in the quarter, i.e., likely after exam.

- Topics include:
  - Security.
  - DTN.
  - Heterogeneous/hybrid networks.
  - CCN.
  - Mobility management.
  - Energy management.
  - SDN.
  - IoT
Student Presentations (cont’d)

• Pick topic among suggested topics or propose a new one.
• Choose 3 papers on the topic.
  – Get instructor’s approval for papers to be covered.
Student Presentations (cont’d)

- Presentations must provide good overview of the papers.
  - They should not follow the paper exactly.
- Presentations should also offer insight and critical perspective of the papers/approaches being presented.
- Class discussion should be encouraged.
  - E.g., have questions prepared.