



Course Syllabus: Advanced Topics in Computer Networks - CS 344

Division	Computer, Electrical and Mathematical Sciences & Engineering
Course Number	CS 344
Course Title	Advanced Topics in Computer Networks
Academic Semester	Spring
Academic Year	2018/2019
Semester Start Date	01/27/2019
Semester End Date	05/23/2019
Class Schedule (Days & Time)	02:30 PM - 05:30 PM Thu

Instructor(s)				
Name	Email	Phone	Office Location	Office Hours
Basem Shihada	basem.shihada@kaust.edu.sa	+966128080332		Thursday 10:30-12noon, Building 1, Room 4252

Teaching Assistant(s)	
Name	Email
Amer AlGhadhban	amer.alghadhban@kaust.edu.sa

Course Information	
Comprehensive Course Description	The course aims to train students in conducting major research in relevant aspects of software defined networking. In particular, scalability, openFlow, data plane, control plane, technologies, standards, and protocols for various communication technologies, edge vs. fabric, virtualization, dynamic networks, PHY-layer, and MAC-layer.
Course Description from Program Guide	Topics in Computer Networks will be analyzed and discussed. Topics will vary by semester.
Goals and Objectives	Train the students on paper readings and performing critical reviews. Train the student on conducting a major research project that is of a publication shape. Conduct research presentations and major project implementations.
Required Knowledge	Solid computer networking background, excellent skills in C/C++, Mininet, Ripcord, Python, and Linux Kernel programming.
Reference Texts	Research papers from top venues in Computer Science and Networking.
Method of evaluation	30.00% - Course Project(s) 20.00% - Scientific review article presentation 30.00% - Homework /Assignments 20.00% - Active participation
Nature of the assignments	Assignments are of a practical coding in nature. Students will be trained to conduct a networking system implementations using MiniNet network emulator. The course will also include a major network implementation project component that requires performing several paper reviews and simulations.
Course Policies	All assignments, including contributions to discussion, submitted by students in the course of this class should be work written by themselves specifically for this class. Students must clearly cite and reference each and every source that was used in their development. Where students use the actual words of a source, they must put those words inside quotation marks.

Additional Information*Student must obtain the passing grade (70%) in each task and the final project to pass the course.***Tentative Course Schedule***(Time, topic/emphasis & resources)*

Week	Lectures	Topic
1	Thu 01/31/2019	Fundamentals of Software Defined Networking I
2	Thu 02/07/2019	Fundamentals of Software Defined Networking II
3	Thu 02/14/2019	Control Plane Scalability I
4	Thu 02/21/2019	Control Plane Scalability II
5	Thu 02/28/2019	Data Plane Scalability I
6	Thu 03/07/2019	Data Plane Scalability II
7	Thu 03/14/2019	SDN Network Management I
8	Thu 03/21/2019	SDN Network Management II
9	Thu 03/28/2019	Network Virtualization
10	Thu 04/04/2019	Data Center I
11	Thu 04/11/2019	Data Center II
12	Thu 04/18/2019	SDN Security
13	Thu 04/25/2019	Cloud Infrastructure I
14	Thu 05/02/2019	Cloud Infrastructure II
15	Thu 05/09/2019	Cloud Routing
16	Thu 05/16/2019	Optical Cloud
17	Thu 05/23/2019	Final Project Presentations

Note

The instructor reserves the right to make changes to this syllabus as necessary.