| Week | Topic/Lecture | Date | Papers for Review | Other Helpful Resources | Project and Assignments | Slides |
|---|---|---|---|---|---|---|
| 1 | Course introduction | 8/23/2023 (Wed) | | How to read a paper | | |
| 2 | Traditional networks and SDN | 8/28/2023 (Mon) | The Evolution of Network Configuration: A Tale of Two Campuses | Quagga BGP example Unraveling the Complexity of Network Management | | |
| | | 8/30/2023 (Wed) | OpenFlow: Enabling Innovation in Campus Networks | The Road to SDN: An Intellectual History of Programmable Networks | Assignment #1 given | |
| 3 | Programmable networks and P4 | 9/4/2023 (Mon) | P4: Programming Protocol-Independent Packet Processors | | | |
| | | 9/6/2023 (Wed) | The P416 Programming Language (Read, but no need to write review) | | | |
| 4 | Network virtualization | 9/11/2023 (Mon) | No Class | | | |
| | | 9/13/2023 (Wed) | The Design and Implementation of Open vSwitch | | Assignment #1 due Assignment #2 given | |
| 5 | Network Operating Systems | 9/18/2023 (Mon) | NOX: Towards an Operating System for Networks | | | |
| | Data Centers and SDN - 1 | 9/20/2023 (Wed) | Jupiter Rising: A Decade of Clos Topologies and Centralized Control in Google's Datacenter Network | | | |
| 6 | Data Centers and SDN - 2 | 9/25/2023 (Mon) | HULA: Scalable Load Balancing Using Programmable Data Planes | | Project proposals due | |
| | Wide Area Networks (WAN) and SDN - 1 | 9/27/2023 (Wed) | Achieving High Utilization with Software-Driven WAN | | | |
| 7 | Wide Area Networks | 10/2/2023 (Mon) | No class (reading days) | | | |

| | | 10/4/2023 (Wed) | SDX: A Software Defined Internet Exchange | | Assignment #2 due | |
|---|---|---|---|---|---|---|
| 8 | Security and SDN | 10/9/2023 (Mon) | SABRE: Protecting Bitcoin against Routing Attacks | | | |
| | | 10/11/2023 (Wed) | NetHide: Secure and Practical Network Topology Obfuscation | | | |
| 9 | Mid-semester updates | 10/16/2023 (Mon) | No paper to review | | Short update on project from each team | |
| | Use of in-network memory | 10/18/2023 (Wed) | NetCache: Balancing Key-Value Stores with Fast In-Network Caching | | | |
| 10 | In-network compute and network measurement | 10/23/2023 (Mon) | Continuous In-Network Round-Trip Time Monitoring | | | |
| | | 10/25/2023 (Wed) | Enabling Passive Measurement of Zoom Performance in Production Networks | | | |
| 11 | Query-driven network telemetry | 10/30/2023 (Mon) | Language-Directed Hardware Design for Network Performance Monitoring | | | |
| | | 11/1/2023 (Wed) | Sonata: Query-Driven Streaming Network Telemetry | | | |
| 12 | Network verification | 11/6/2023 (Mon) | p4v: Practical Verification for Programmable Data Planes | | | |
| | | 11/8/2023 (Wed) | Hydra: Effective Runtime Network Verification | | | |
| 13 | A dream of self-driving networks | 11/13/2023 (Mon) | Why (and How) Networks Should Run Themselves | | | |
| | Using ML for Networks | 11/15/2023 (Wed) | Learning in situ: a randomized experiment in video streaming | | | |
| 14 | Using Networks for ML | 11/20/2023 (Mon) | Accelerating Distributed Reinforcement Learning with In-Switch Computing | | | |
| | | 11/22/2023 (Wed) | No class (Thanksgiving) | | | |
| 15 | Programmability and 5G | 11/27/2023 (Mon) | Using Deep Programmability to Put Network Owners in Control | | | |

| | | 11/29/2023 (Wed) | [Building Flexible, Low-Cost Wireless Access Networks With Magma](#) | | | |
|---|---|---|---|---|---|---|
| 16 | Project presentations | 12/4/2023 (Mon) | | | Project presentations due | |
| | | 12/6/2023 (Wed) | | | | |
| 17 | Due dates | 12/11/2023 (Mon) | | | | |
| | | 12/13/2023 (Wed) | | | Project reports due | |