

Syllabus:

Lesson 1: Intro to AOS

Lesson 2: OS Structures

- SPIN, Exokernel, L3 microkernel approach

Lesson 3: Virtualization

- Memory Virtualization
- CPU and Device virtualization

Lesson 4: Parallel Systems

- Shared memory machines
- Synchronization
- Communication
- Lightweight RPC
- Scheduling
- Shared memory multiprocessor OS

Lesson 5: Distributed Systems

- Lamport Clock
- Latency limits
- Active networks
- Systems from Components

Lesson 6: Distributed Objects and Middleware

- Spring Operating System
- Java RMI
- Enterprise Java Beans

Lesson 7: Distributed Subsystems

- Global memory systems
- Distributed Shared memory
- Distributed File Systems

Lesson 8: Failures and Recovery

- Lightweight Recoverable Virtual Memory
- RioVista
- Quicksilver

Lesson 9: Internet Computing

- Giant internet services
- MapReduce
- Content Delivery Networks

Lesson 10: RT and Multimedia

- TS-Linux
- PTS

Lesson 11: Security

- Principles in Information Security
- Security in Andrew.

Course Dashboard on Udacity: <https://classroom.udacity.com/courses/ud189>

Projects:

Project 1: Virtual Machine Scheduling in KVM

Project 2: Barrier Synchronization

Project 3: Distributed Service using GRPC

Project 4: Implement MapReduce Framework

Spring 2019 Schedule:

Week	Activity	Video Length	Date Due	Notes
0	Orientation		01/7/2019	Students should complete GT OMS orientation on Udacity before beginning course
1	OS Refresher	2h, 18min	01/11/2019	(Optional) Students who need a refresher on AOS topics should take this course
1	Lesson 1: Intro to AOS	46min	01/11/2019	
2	Lesson 2: OS Structures	2h, 40min	01/18/2019	
2	Homework		01/21/2019 (11:55pm EST)	Due

3	Lesson 3: Virtualization	1h, 53min	01/25/2019	
3	Pre-lab		01/28/2019 (11:55pm EST)	Due
4-5	Lesson 4: Parallel Systems	5h, 34min	02/08/2019	This is the last lesson that will be included in the midterm.
5	Project1: Virtual Machine Scheduling in KVM		02/11/2019 (11:55pm EST)	Due
6-7	Lesson 5: Distributed Systems	3h, 20min	02/22/2019	(Not included in the midterm)
7	Midterm		03/01/2019, 11:55pm - 03/04/2019, 11:55pm (EST)	from Midnight Friday to Midnight Monday

8	Lesson 6: Distributed Objects and Middleware	1h, 56min	03/01/2019	
9	Project 2: Barrier Synchronization		03/04/2019 (11:55pm EST)	Due
9-10	Lesson 7: Distributed Subsystems	3h, 48min	03/15/2019	
11	Lesson 9: Internet Computing	2h, 34min	03/22/2019	
11	Project 3: Distributed Service using GRPC		03/25/2019 (11:55pm EST)	Due
12	Lesson 10: RT and Multimedia	1h, 15min	03/29/2019	
13	Lesson 8: Failures and Recovery	1h, 58min	04/05/2019	
14	Lesson 11: Security	1h, 17min	04/12/2019	

15	Project 4: Implement MapReduce Framework		04/15/2019 (11:55pm EST)	Due
16	Final Exam		04/26/2019, 11:55pm - 04/29/2019, 11:55pm (EST)	from Midnight Friday to Midnight Monday