Course Schedule, Version 2.1

September:

Class 1: Thursday, Sept. 5. Nancy Lynch
Introduction to the course. Shared memory algorithms: Mutual exclusion.
*** Lamport. A fast mutual exclusion algorithm
*** Friedberg, Peterson. An efficient solution to the mutual exclusion algorithm using weak semaphores.

Class 2: Tuesday, Sept. 10. Nancy Lynch
Shared memory: Renaming. Lattice agreement.
*** Moir, Anderson. Wait-free algorithms for fast, long-lived renaming.
*** Attiya, Fouren. Adaptive and efficient algorithms for lattice agreement and renaming.

Class 3: Thursday, Sept. 12. Nancy Lynch
Adaptive algorithms for renaming and collect. Algorithms for unbounded concurrency.
Attiya, Fouren. Polynomial and adaptive long-lived (2k-1)-renaming
Afek, Stupp, Touitou. Long-lived and adaptive collect with applications
Attiya, Fouren, Gafni. An adaptive collect algorithm with applications
*** Merritt, Taubenfeld. Computing with Infinitely Many Processes.
*** Gafni, Merritt, Taubenfeld. The concurrency hierarchy, and algorithms for unbounded concurrency.

Class 4: Tuesday, Sept. 17. Rodrigo Rodrigues
Byzantine quorum systems.
*** Malkhi, Reiter. Byzantine quorum systems.
*** Alvisi, Malkhi, Pierce, Wright. Dynamic Byzantine quorum systems.

Class 5: Thursday, Sept. 19. Nancy Lynch
Computing with faulty objects.
*** Afek, Greenberg, Merritt, Taubenfeld. Computing with Faulty Shared Objects.
*** Jayanti, Chandra, Toueg. Fault-tolerant wait-free shared objects.

Class 6: Tuesday, Sept. 24. Toh Ne Win, Rui Fan, Nancy Lynch
Disk Paxos with finitely and with infinitely many processes.
*** Gafni, Lamport. Disk Paxos.
*** Chockler, Malkhi. Active disk Paxos with infinitely many processes.

Class 7: Thursday, Sept. 26. Nancy Lynch, Dilsun Kirli
Logical time. Clock synchronization.

October:

Class 8: Tuesday, Oct. 1. Rodrigo Rodrigues
Data replication with Byzantine failures.

Class 9: Thursday, Oct. 3. Tina Nolte, Vida Ha
Failure detectors and fault-tolerant broadcasts.

Class 10: Tuesday, Oct. 8. Tina Nolte, Vida Ha
Failure detectors and fault-tolerant broadcasts.

Class 11: Thursday, Oct. 10. Nancy Lynch
Consensus. Paxos revisited. Early-stopping consensus algorithms.

Tuesday, Oct. 15: Columbus Day, Vacation.

Class 12: Thursday, Oct. 17. Nancy Lynch
Consensus.

Class 13: Tuesday, Oct. 22. Nancy Lynch
Data replication.

Class 14: Thursday, Oct. 24. Alex Shvartsman
Performing work in distributed systems.

Class 15: Tuesday, Oct. 29. Boaz Patt-Shamir, Vahab Mirrokni, Mohammad Hajiaghayi
Self-stabilizing systems.

Class 16: Thursday, Oct. 31. Boaz Patt-Shamir, Vahab Mirrokni, Mohammad Hajiaghayi
Self-stabilizing systems.

November:

Class 17: Tuesday, Nov. 5. Seth Gilbert, Boris Paskalev, Sayan Mitra
End-to-end communication and routing. Building communication structures.

Class 18: Thursday, Nov. 7. Rui Fan, Nancy Lynch
Group communication

Class 19: Tuesday, Nov. 12. Rui Fan, Nancy Lynch
Group communication

Class 20: Thursday, Nov. 14. Ching Law, Andrew Lau
Peer-to-peer networks: Location services.

Class 21: Tuesday, Nov. 19. Ching Law, Andrew Lau
Peer-to-peer networks: Location services.

Class 22: Thursday, Nov. 21. Nancy Lynch, Seth Gilbert
Reconfigurable atomic memory: The RAMBO algorithm.

Class 23: Tuesday, Nov. 26. Vahab Mirrokni, Mohammad Hajiaghayi
Mobile computing: Topology control.

December:

Class 24: Tuesday, Dec. 3. Indraneel Chakraborty
Mobile computing: Routing and end-to-end communication.

Class 25: Thursday, Dec. 5. Nancy Lynch
Mobile computing: Leader election, mutual exclusion and other problems.

Class 26: Tuesday, Dec. 10. Sayan Mitra
Mobile computing: Coordinated robots.