EE381V / CS395T Unconventional Computation
Spring 2024
Dr. David Soloveichik

**Tentative Course Schedule**
**(subject to change)**

| Date | | Topic | | HW due | Project |
|---|---|---|---|---|---|
| **January 16** | | Class introduction | } week 1 | | |
| **January 18** | | GPAC | | | |
| **January 23** | | GPAC | } week 2 | | |
| **January 25** | | Chemical reaction networks | | | |
| **January 30** | | Analog electronics, Chaos | } week 3 | HW 1 | |
| **February 1** | | ODEs for Discrete Algs | | | |
| **February 6** | | Linear threshold units | } week 4 | HW 2 | |
| **February 8** | | Linear threshold units | | | |
| **February 13** | | Turing universality | } week 5 | HW 3 | |
| **February 15** | | Counter machines | | | |
| **February 20** | | Cellular automata | } week 6 | | Presentation 1 (on Friday) |
| **February 22** | | Kolmogorov complexity | | | |
| **February 27** | | Uncomputability | } week 7 | HW 4 | |
| **February 29** | | Landauer limit | | | |
| **March 5** | | Uncomputing | } week 8 | HW 5 | |
| **March 7** | | 1-1 functions | | | |
| **SPRING BREAK** | | | | | |
| **March 19** | | Pebble game | } week 9 | HW 6 | |
| **March 21** | | Pebble game | | | |
| **March 26** | | Reversible circuits | } week 10 | | |
| **March 28** | | Billiard ball model | | | |
| **April 2** | | Analogy to stochastic | } week 11 | HW 7 | |
| **April 4** | | Cancellation | | | |
| **April 9** | | Cancellation | } week 12 | | Presentation 2 (on Friday) |
| **April 11** | | Phase query | | | |
| **April 16** | | Deutsch-Jozsa algorithm | } week 13 | HW 8 | |
| **April 18** | | Shor's algorithm | | | |
| **April 23** | | Shor's algorithm | } week 14 | HW 9 | |
| **April 25** | | Shor's algorithm | | | |

Analog Computation
Almost anything can compute everything
Reversible Computation
Quantum Computation