

**Revised Schedule** (Subject to change over the semester. The reading assignments should be completed by the date on which they appear.

1	<b>Tues 1/28. <u>Part I: Entropy and Information</u></b> <i>Carnot and Heat Engines.</i> Background: [F93] Chap 3.	<b>Thurs 1/30. <i>Formulations of the 2nd Law.</i></b> [F93] Chap 4.
2	<b>2/4. <i>Thermodynamic Entropy.</i></b> [F93] Chap 5.	<b>2/6. <i>Thermodynamic Entropy, cont.</i> hw1 due.</b>
3	<b>2/11. <i>Maxwell's Demon.</i></b> [EN98] pp. 435-464.	<b>2/13. <i>Maxwell's Demon, cont.</i></b>
4	<b>2/18. <i>Boltzmann Entropy.</i></b> [G01].	<b>2/20. <i>Boltzmann Entropy, cont.</i></b> <b>hw2 due.</b>
5	<b>2/25. <i>Shannon Information.</i></b> [T04].	<b>2/27. <i>Demons and Information.</i></b> [EN99] pp. 1-20.
6	<b>3/3. <i>Thermodynamics of Computation.</i></b> [B01].	<b>3/5. <u>Part II: Computation and Spacetime</u></b> <i>Turing Machines.</i> [DM18]. <b>hw3 due.</b>
7	<b>3/10. <i>Turing Machines, cont.</i></b>	<b>3/12. Midterm</b>
8	<b>3/17. Spring Break</b>	<b>3/19. Spring Break</b>
9	<b>3/24. <i>Classical Spacetimes.</i></b> <b>Paper 1 due.</b>	<b>3/26. <i>Relativistic Spacetimes.</i></b> <b>hw4 due.</b>
10	<b>3/31. <i>Malament-Hogarth Spacetimes.</i></b> [EN93].	<b>4/2. <i>Turing Machines in M-H Spacetimes.</i></b> [H94].
11	<b>4/7. <u>Part III. Quantum Information</u></b> <i>Quantum Mechanics: Motivation.</i>	<b>4/9. <i>Quantum Mechanics: Formalism.</i></b> [RP00] pp. 1-16. <b>hw5 due.</b>
12	<b>4/14. <i>Qubits and Cryptography</i></b> [T08] pp. 1-13.	<b>4/16. <i>Dense Coding and Teleportation</i></b> [T08] pp. 13-20; [RP00] pp. 17-19.
13	<b>4/21. <i>Quantum Computation.</i></b> [T08] pp. 20-22; [RP00] pp. 19-23.	<b>4/23. <u>Part IV: Info-Theoretic Physics</u></b> <i>Physics from Quantum Info.</i> [T08] pp. 38-45; [B04]. <b>hw6 due.</b>
14	<b>4/28. <i>Physics from Quantum Information, cont.</i></b>	<b>4/30. <i>Physics from Fisher Information.</i> [Fr99].</b>
15	<b>5/5. <i>Physics from Fisher Information, cont.</i></b>	<b>5/7. <i>Overflow/Review.</i></b> <b>Paper 2 due. hw7 due.</b>
16	<b>Final (date to be announced by Registrar)</b>	