Material for Week 4
Physics 4488/6562: Statistical Mechanics
http://www.physics.cornell.edu/sethna/teaching/562/
Exercises due Mon. Feb 17
Last correction at March 12, 2020, 4:49 pm

All exercises are from Version 2.0 of the text: http://pages.physics.cornell.edu/~sethna/StatMech/v2EntropyOrderParametersComplexity.pdf

XXX Add an exercise next year: feedback is that this HW was unusually short.

Monday
In-class question: 5.1 *Life and the heat death of the Universe*
Wednesday
Read: Chapter 5, Sec. 5.2.1 (Entropy of mixing)
Pre-class question: 3.18 *Ideal gas glass*
In-class question: 5.4 *Black hole thermodynamics*
In-class question: 5.22 *The Dyson sphere*
Friday
Read: Chapter 5, Sec. 5.2.2 (Residual entropy of glasses)
Pre-class question: 5.18 *Entropy of socks*
In-class question: 5.12 *Rubber band*
In-class question: 5.23 *Entropy of the galaxy*
Monday
Read: Chapter 5, Sec. 5.3.1 (Entropy as ignorance: Non-equilibrium)
Pre-class question: 5.19 *Aging, entropy, and DNA*

Exercises

Everyone (4488 and 6562)

4.4 *Jupiter! and the KAM theorem.* Hints are available in Python, Mathematica, and Matlab at http://pages.physics.cornell.edu/~sethna/StatMech/ComputerExercises.html.
5.11 *Entropy of glasses.*

Graduate (6562 only)

5.2 *Burning information and Maxwellian demons.*
5.25 *Equilibration in phase space.*