Material for Week 11
Physics 4488/6562: Statistical Mechanics
http://www.physics.cornell.edu/sethna/teaching/562/
Exercises due Mon. Apr 27
Last correction at April 18, 2020, 12:12 pm

This week the material is more formal and theoretical. The pre-class exercises are more challenging than normal – you may wish to use Mathematica for some of the integrals, although all can be done by hand using contour integration.

Monday
In-class question: 10.13 *Onsager regression hypothesis*
Wednesday
Read: Chapter 10, Sec. 10.5 (Susceptibility and linear response), 10.6 (Dissipation and the imaginary part), and 10.7 (Static susceptibility),
Pre-class question: 10.14 *Liquid dynamics*
In-class question: 10.15 *Harmonic susceptibility and dissipation*
Friday
Read: Chapter 10, Secs. 10.8 (The fluctuation-dissipation theorem), and 10.9 (Causality and Kramers-Krönig)
Pre-class question: 10.18 *Harmonic Kramers–Krönig*
In-class question: 10.16 *Harmonic fluctuation dissipation*
Monday
Read: Chapter 11, Sec. 11.1 (Stable and metastable phases) and 11.2 (Maxwell construction)
Pre-class question: 11.11 *Unstable to what?*

Exercises

Everyone (4488 and 6562)

10.17 *Susceptibilities and correlations.*

Graduate (6562 only)

10.9 *Quasiparticle poles and Goldstone's theorem.*
10.8 *Magnetic dynamics.*