

# 8.044 Lecture Notes

## Chapter 3: Thermodynamics, first pass

Lecturer: McGreevy

**Reading:** CJ Adkins, *Equilibrium Thermodynamics*, Chapters 1, 2, 3.1-3.7.  
Skip Adkins §3.5.4.  
R Baierlein, *Thermal Physics*, Chapter 1.

The four laws of thermodynamics [according to Prof. Yosi Avron]:

0th Law: You have to play the game.

1st Law: You can't win.

2nd Law: You can't even break even.

3rd Law: And you can't quit.

To counter your impatience to get to statistical mechanics, let me offer the following [from Prof. David Tong]:

*...the weakness of thermodynamics is also its strength. Because the theory is ignorant of the underlying nature of matter, it is limited in what it can tell us. But this means that the results we deduce from thermodynamics are not restricted to any specific system. They will apply equally well in any circumstance, from biological systems and quantum gravity. And you cant say that about a lot of theories!*

# 8 044 Lecture Notes Chapter 5 Thermodynamics Part 2

**Annelies Wilder-Smith**



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