Thinking Like a Chemist 1/14/14

- What are we going to learn today?
- Note some important details on the syllabus
- Become familiar with the course website
- Meet the teaching team
- Review Mechanics of a Learner Centered Course
- Review the Concepts of Thinking Like a Chemist in the context of a review of some material from last semester —
  - Molecular Geometry
  - IMFs
  - Enthalpy, Entropy, Free Energy
- LM daily
- HW Thu due Tue

<u>Assignments</u>

LM 01 - Unit 5

LM 02 - Thermo

LM 03 - Heating Curves

Thinking like a Chemist: Macro/Micro

IMFs

liquid to gas: positive ΔH_{vap}
need to put energy in
$\Delta H = H_f - H_i = H_{gas} - H_{liq} > 0$

ΔH_{vap} is greater for isopropanol because it has H-bond

- What did we learn?
- Enthalpy is related to the "energy"
- liquids - low enthalpy,
  low energy
  more stable
- stronger IMFs bigger diff in IMFs

- Entropy ↑: ↑Volume, ↑ Temp, ↑ # of molecules
solid → liquid ↑

2nd law of Thermo: Universe tends to higher entropy

entropy of liquids & gases are generally sa

- Free Energy

lowest → more stable

$\Delta H = T\Delta S$ when $\Delta G = 0$