**Today:**

- Finish Chapter 22
- **Review Session**
- **Midterm 2: Tue Nov 17**

Chs 9, 11, 13, 14, 15, 19, 20, 22

# Review for Midterm 2

- **Midterm 2: Tue Nov 17**

**Chs 9, 11, 13, 14, 15, 19, 20, 22**

- 50 multiple-choice questions
- Bring a No. 2 pencil and an eraser
- You will be given a periodic table

**Resources for studying:**

- go through all questions, exercises, and examples we did during lectures, homeworks and posted solutions
- revise lecture slides carefully, read book and "check yourself" qns for support
- additional questions in today's review: do NOT try these until you have studied the material from the lectures
- email me if you have any questions or want to meet

# Recall:

- Chapter 9: Gravity: $F= Gm_1m_2/d^2$ , apparent weight = force exerting against supporting surface, tides, black holes
- Chapter 11: Atomic Structure: nucleus (protons + neutrons) & electrons, atomic number, atomic mass, periodic table, isotopes, element, molecule, compound, antimatter. *You'll be given a periodic table.*

• Chapter 13: Liquids: Pressure = force/area, liquid pressure = weight density x depth, buoyant force, volume of fluid displaced = submerged volume of object, Archimedes principle: buoyant force = weight of fluid displaced, principle of flotation, Pascal's principle, surface tension, capillarity, adhesion, cohesion

• Chapter 14: Gases and Plasmas: atmospheric pressure, Archimedes' principle for air, barometer, Boyle's law, Bernoulli's principle for pressure of moving fluid, plasma

• Chapter 15: Heat: temperature, thermometer, absolute zero, internal energy, heat flows from hotter to colder object, specific heat capacity, thermal expansion, anomalous expansion of water

• Chapter 19: Vibrations and waves: simple harmonic motion, amplitude, frequency, period, frequency = 1/period, wavelength, wave speed = frequency x wavelength, transverse vs longitudinal, interference, Doppler effect, bow and shock waves, sonic boom

• Chapter 20: Sound: speed of sound, wave of compressions and rarefactions, reflection, refraction, natural frequency, forced vibration, resonance, interference, beats, beat freq $=f_1 - f_2$

• Ch 22: Electrostatics: charge conservation, charge quantization, Coulomb's law $F= kq_1q_2/d^2$, conductors vs insulators, charging by induction, polarization, electric field electric potential, electric potential energy