Information and Study Hints for Exam 1

- Bring to the exam:
  One or more #2 pencils
  Your calculator (no stored information)
  The periodic table that you received in class (clean copy)
- Arrive early and sit as instructed.
  Students who are not seated at the scheduled start of class will need to wait in the front of the classroom until the exam is underway.
- Make sure all cell phones and pagers are OFF!
- Code your answer sheet carefully as instructed.
- Keep your eyes on your own work and protect your work from view by others.

To prepare for the exam, make sure that you review the quizzes, recitation problems and homework assignments from this term. Going over your lecture notes should also be an important component of your study time. Use the old exams that are available on ONCOURSE to gauge your preparedness and to get a feel for the types of questions that might be asked.

The exam consists of 40 multiple-choice items (4 pts. each). Each question has 5 possible responses (a-e). Always chose the **best** answer. Make sure you answer all 40 questions!

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matter and measurements

states of matter
physical and chemical properties (physical and chemical changes)
mixtures and pure substances
elements and compounds
formulas of compounds
units and conversions
meaning of metric prefixes and how to use that info (example: 10^{-3} is milli-, 1 mm = 10^{-3} m)
convert anything into anything else with a conversion factor
    check the front of the old exams to see typical "given information"
significant figures (adding, subtracting, multiplying and dividing)
rounding
exact numbers (counting numbers, exact conversions)
scientific notation
density—YOU MUST KNOW D=m/V and be able to do density problems.
heat, temperature, specific heat—problems involving use of $q=mC\Delta T$

atomic structure

electromagnetic radiation: microwaves IR roygbiv UV (in order of increasing energy)
nuclei (protons, neutrons, mass number, atomic number, charge on an atom) ${}_{Z}^{A}E^{q}$
isotopes (example: neon-20 and neon-21, also written as ${}_{10}^{20}\mathrm{Ne}$ and ${}_{10}^{21}\mathrm{Ne}$)
atomic weight (from periodic table, meaning: mass in amu of one atom of the element)
electron configuration (2 electrons per orbital maximum!)
    use the periodic table to know the order of filling of the orbitals
    valence electrons, isoelectronic
periodic table (common names of groups, group numbers and periods)
elemental symbols and spelling of elements for atomic numbers 1-57, 72-86, plus Ra, Pu, U