

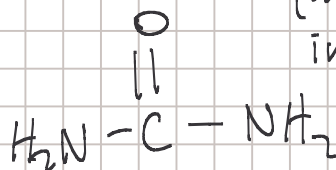
2061 Ch 1

Note Title

8/23/2005

Vitalism

urea



(wrong struct given
in class, sorry!)

first natural product synthesized

herbal treatments

100% "all natural"

start w/ isolated nat. prod
(natural product chemists)

↓
interesting medicinally

↓
Synthesized from scratch

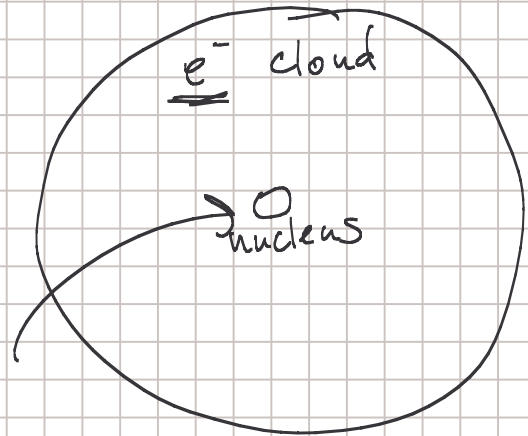
Organic : Compounds containing Carbon
(must)

not all "C" cpds considered organic
matter of properties

inorganic : CO_2 , Na_2CO_3 , diamond

diamond: only C (all covalently bonded in diamond lattice)
 graphite: " sheets of C rings

Atomic structure



Similar masses
 ~ 1 amu

(+) protons
 (no charge) neutrons

isotopes

Carbon - 12 most abundant → 6 n

Carbon - 13 → 7 n

Carbon - 14 least abundant

6 protons

mass number
 #p + #n

uncharged:

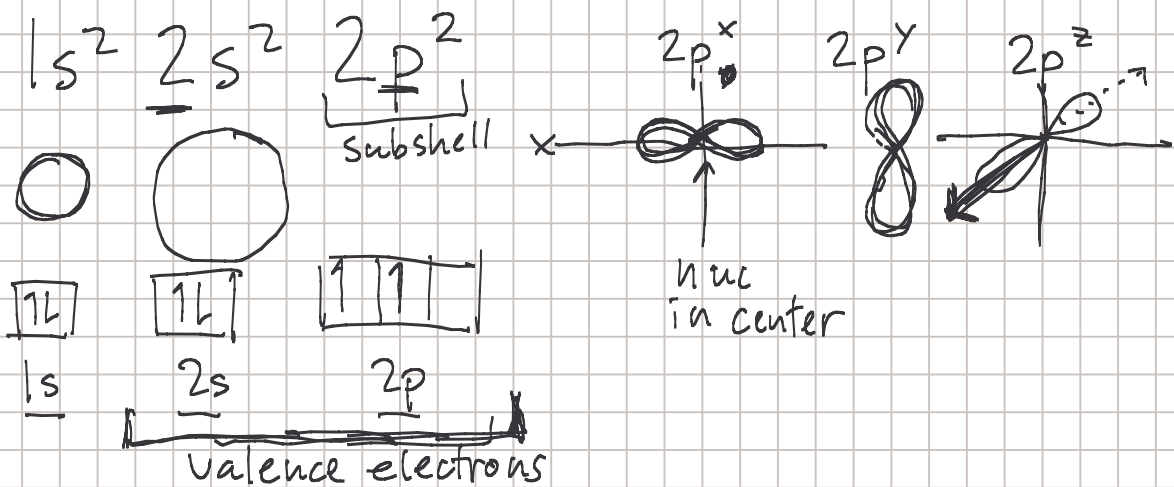
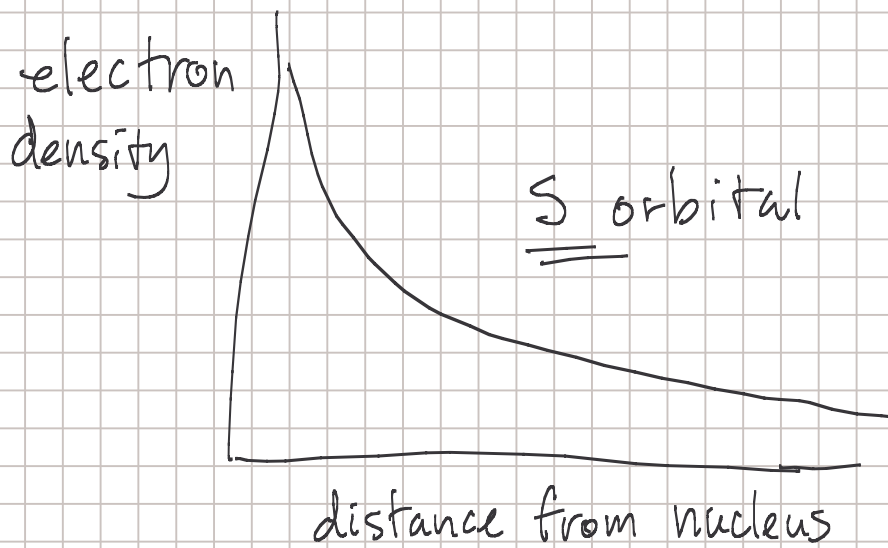
6 electrons total

atomic orbitals

Carbon 6 e⁻
 2 ← # of electrons
 |s type of orbital
 shell (n) principal energy level

s orbitals: spherical
 probability of finding e⁻

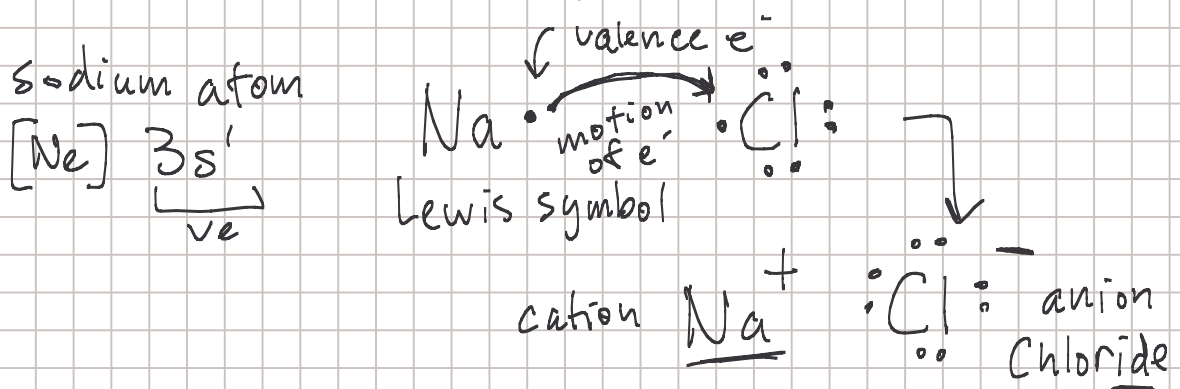


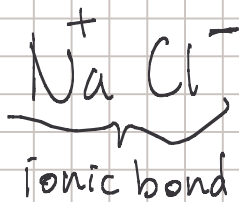


much more favorable
for all subshells to be filled (somehow)

Valence electrons : e^- in outermost shell
energy level

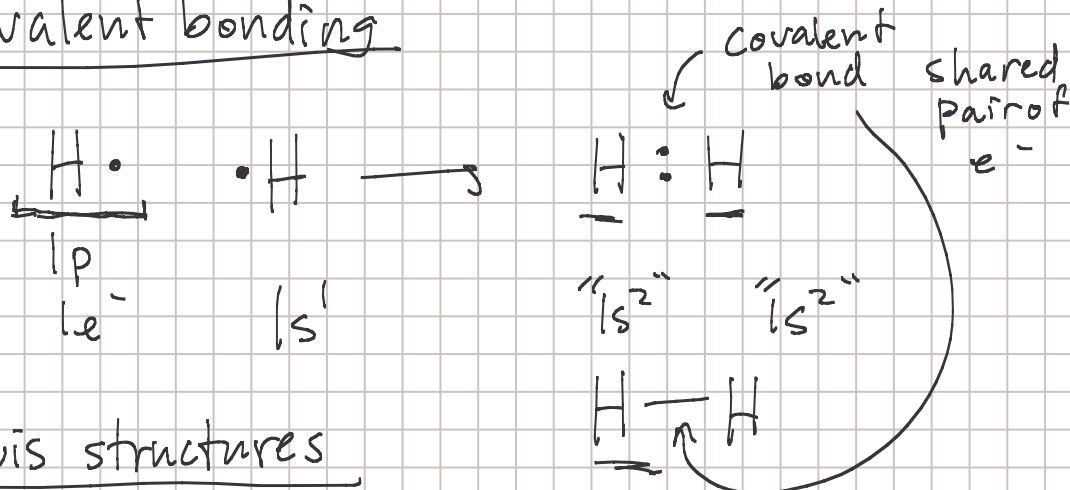
ionic bonding involves full addition or removal of electrons





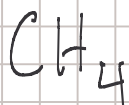
octet rule
most 2nd row elements
 most stable w/ 8 v.e.

Covalent bonding

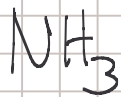
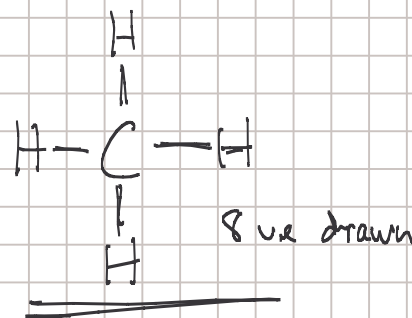


Lewis structures

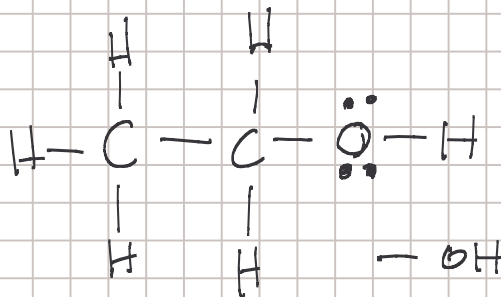
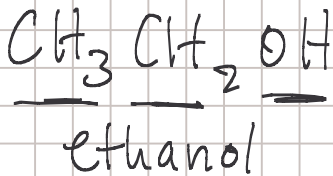
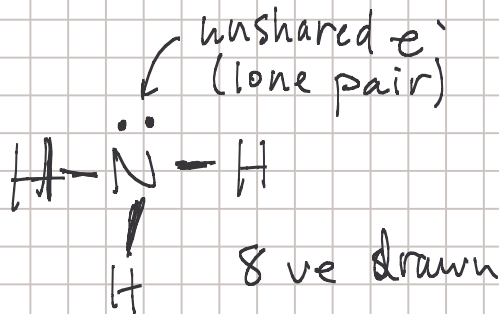
show all atoms, bonds, valence electrons



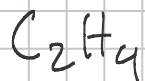
$$4 + 4(1) = \underline{8 \text{ v.e. total}}$$



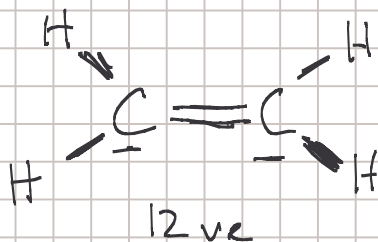
$$5 + 3(1) = 8 \text{ ve}$$



ethylene



12 ve



acetylene



10 ve

