

LEC ①

CHEM 30A

Apr 4th ①

- ① WHO / WHEN / WHERE / HOW ?
- ② WHAT ?

HMK: READ 1-1.4

PROBLEMS 1.1-1.5, 1.19-1.22

(Some for
3rd/4th ED)

① me

- 3077D YOUNG HALL

- www.chem.ucla.edu/~carhill/teaching.htm



Lecture notes (mine)

Announcements

Handouts

Exams & keys

Policy

- Recommend that you come to LECTURES
(questions OK in class)

- ENGLISH ENGLISH

26th LETTER, 13th ELEMENT, FOOTBALL

- MODEL KITS not required, may be useful

- TAs
Link, Susan, Heather

- Discussion Sections
(be consistent as to which one you attend, quizzes & midterms returned there)

- Office Hours (YH 3077F)
Times posted on website

- TEXTBOOK
Brown & Foote 4th Edition
(Homework / Reading assignments)

- EXAMS

3 QUIZZES	100	(3 x 35)
2 MIDTERMS	200	(2 x 115)
1 FINAL	<u>200</u>	(1 x 230)
	500	(565)

FINAL COMPREHENSIVE

RULES: SEE SYLLABUS AND WEBSITE

- CHEATING - Don't ever think about it...

- SYLLABUS - Tentative, but READ IT

- WAITLIST

- not my decision (chem & biochem undergrad office)

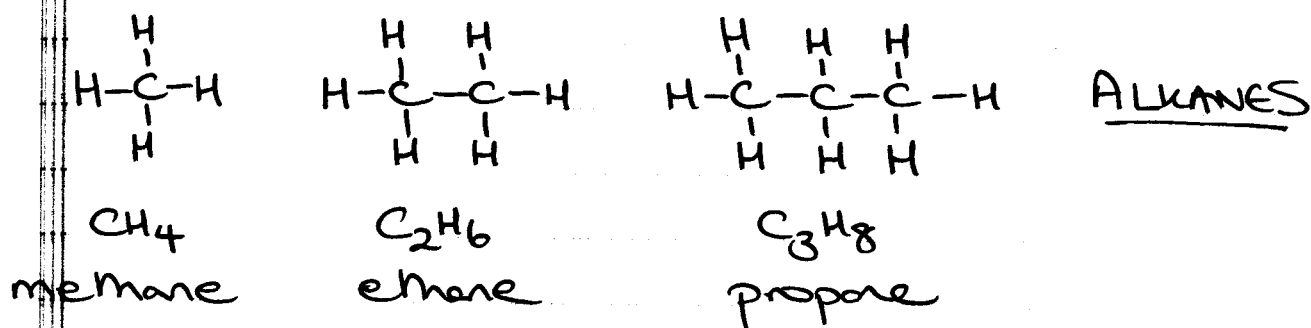
- IMPACTED CLASS...

② WHAT? - ORGANIC CHEMISTRY

ORGANIC => Chemistry of compounds from living things, as opposed to inorganic compds.

↳ study of compounds containing CARBON

SIMPLEST COMPOUNDS CONTAIN CARBON AND HYDROGEN ONLY => HYDROCARBONS



- hydrocarbons serve as a framework from which to dangle FUNCTIONAL GROUPS.

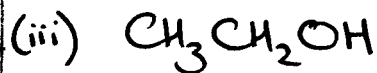
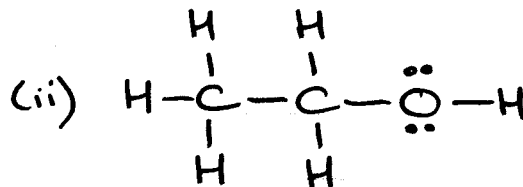
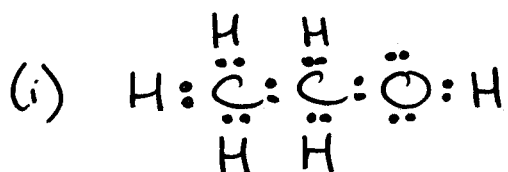
=> Specific combinations of atoms in precise arrangements

- (i) CLASSIFY ORGANIC COMPOUNDS
- (ii) BASIS FOR NAMING
- (iii) PREDICTABLE CHARACTERISTIC REACTIVITY

For example : ALCOHOLS

e.g. $\text{CH}_3\text{CH}_2\text{OH}$ ethanol

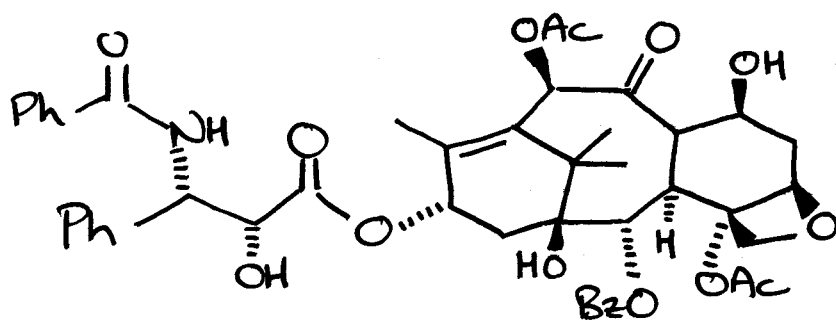
DRAWING MOLECULES



LINE FORMULA
(more on this later)

Atoms other than C, H \Rightarrow HETEROATOMS

e.g. O, N, S, P, F, Cl, Br, I



TAXOL

5

- FUNCTIONAL GROUPS

- STEREOCHEMISTRY

- ABBREVIATIONS

- LINE FORMULAE

- most promising ANTI-TUMOUR AGENT developed in three decades

1998 SALES \$1.2 Billion

+ where do we get it - NOT like it grows on trees

- Well, yes it does... BARK OF PACIFIC YEW TREE

BUT six 100yr old trees \rightarrow 1 patient
(kills trees)

- SYNTHESIS (making molecules)

\Downarrow

REACTIONS ($A + B \xrightarrow{X} C$)

\Downarrow

MECHANISMS (how it all works)

\Downarrow

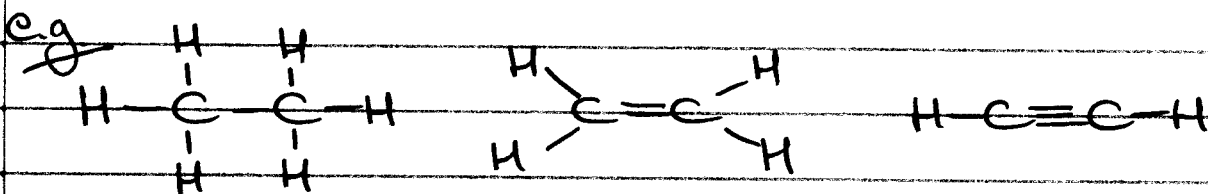
STRUCTURE & BONDING (electrons & orbitals)

6

THINGS YOU NEED TO KNOW

H forms 1 BOND (neutral species)
C forms 4 BONDS

not absolute, but good 99% of the time



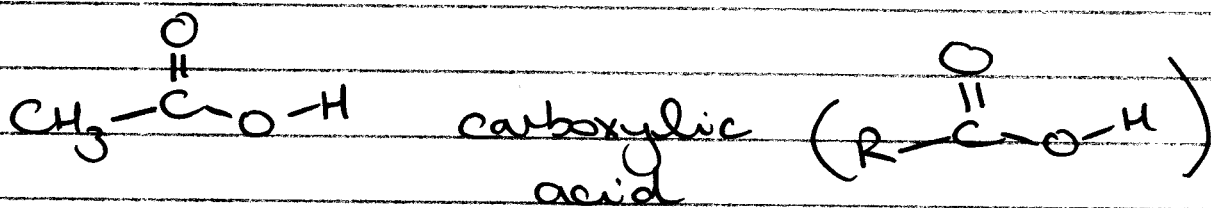
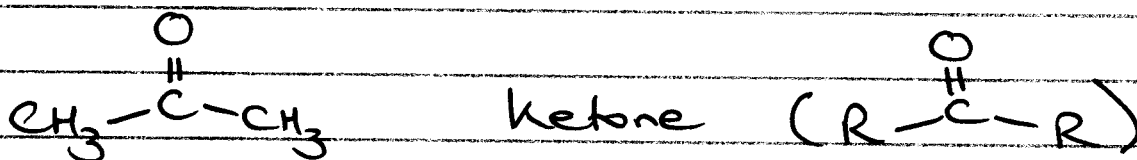
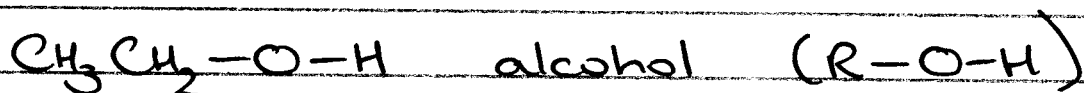
ethane
ALKANE

ethylene
ALKENE

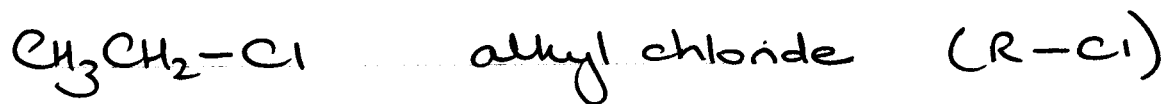
acetylene
ALKYNE

O forms 2 BONDS

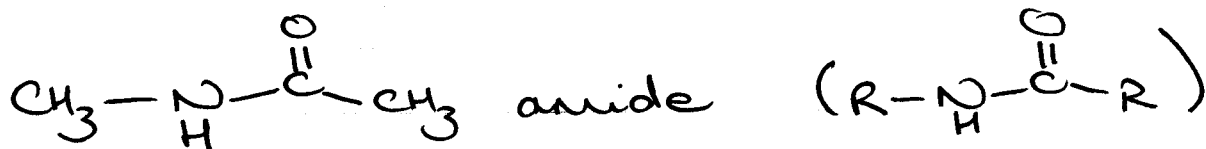
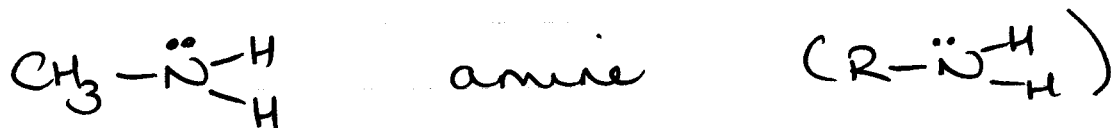
Hal (F, Cl, Br, I) form 1 BOND



(7)



- N forms 3 BONDS



- S, P \Rightarrow variable.