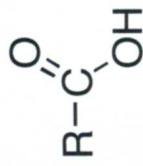
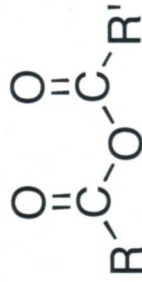


227

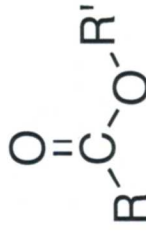
Carboxylic Acids and Derivatives - Lecture Outline 4



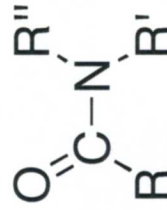
Acyl halides where X = F, Cl, Br, I



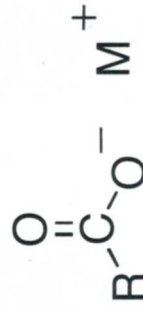
Anhydrides



Esters



Amides



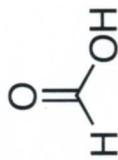
Carboxylate Salts

where M = metal or other

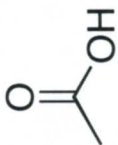
Carboxylic Acids and Derivatives Nomenclature

For **acids** replace terminal “-e” of alkane with “-oic acid” number so carboxylate carbon is 1, except aromatic acids - benzoic

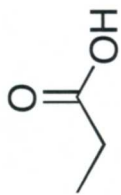
Know the names of the acids below



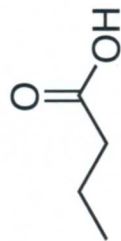
formic acid



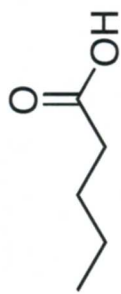
acetic acid



propionic acid



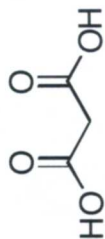
butyric acid



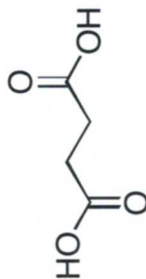
valeric acid



oxalic acid



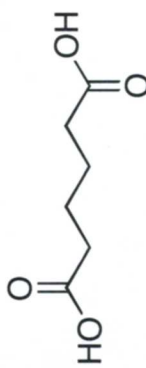
malonic acid



succinic acid



glutaric acid



adipic acid

methanoic acid

ethanoic acid

propanoic acid

butanoic acid

pentanoic acid

ethanedioic acid

propanedioic acid

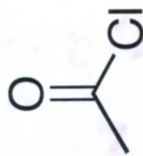
butanedioic acid

pentanedioic acid

hexanedioic acid

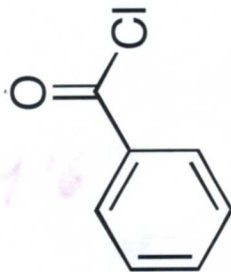
Carboxylic Acids and Derivatives Nomenclature

For **acyl halides** change "ic acid" to "yl halide"

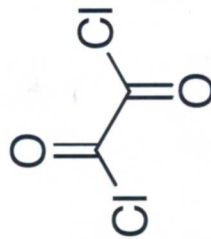


acetyl chloride

ethanoyl chloride

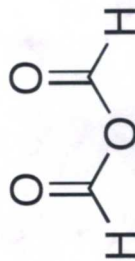


benzoyl chloride

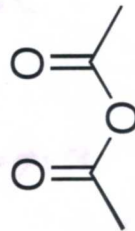


oxalyl dichloride

For **anhydrides** name acid parts and change "acid" to "anhydride"

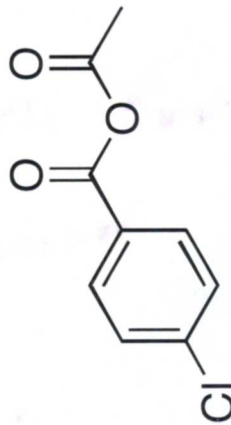


formic anhydride



acetic anhydride

ethanoic anhydride

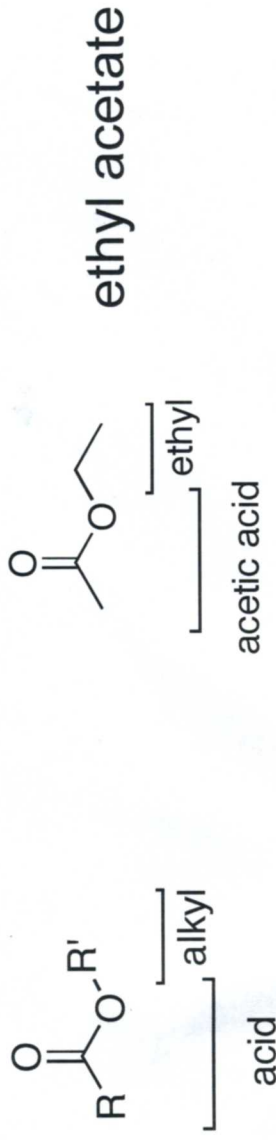


acetic 4-chlorobenzoic anhydride

Carboxylic Acids and Derivatives Nomenclature

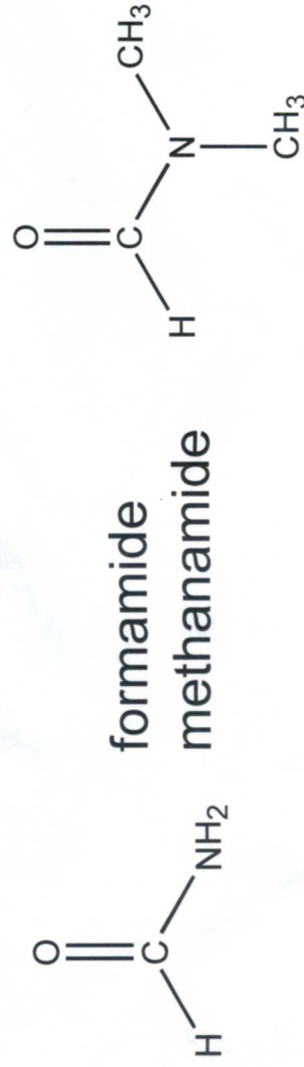
For **esters** name alkyl part,
then acid name and change “ic acid” to “ate”

C1 carbon is the carbon attached to the oxygen in the alkyl chain
and the carbonyl in the acid portion



For **amides** drop “-ic acid” or “oic acid”, add “amide”

If alkyl group on the amide nitrogen, precede the name with N-alkyl



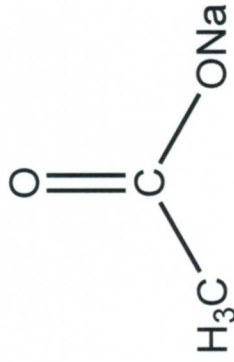
N,N-dimethylformamide

DMF (know)

N,N-dimethylmethanamide

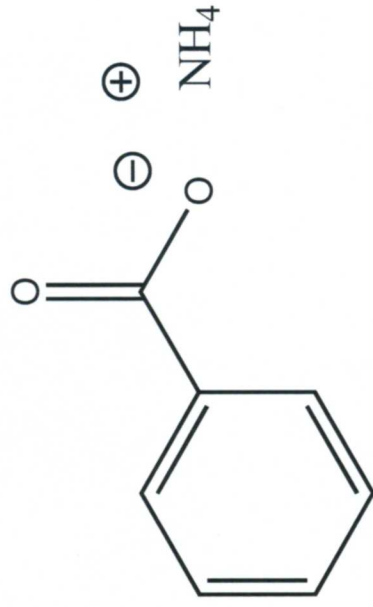
Carboxylic Acids and Derivatives Nomenclature

For **carboxylate** salts name cation part,
then acid name and change “ic acid” to “ate”



sodium acetate

sodium **ethanoate**

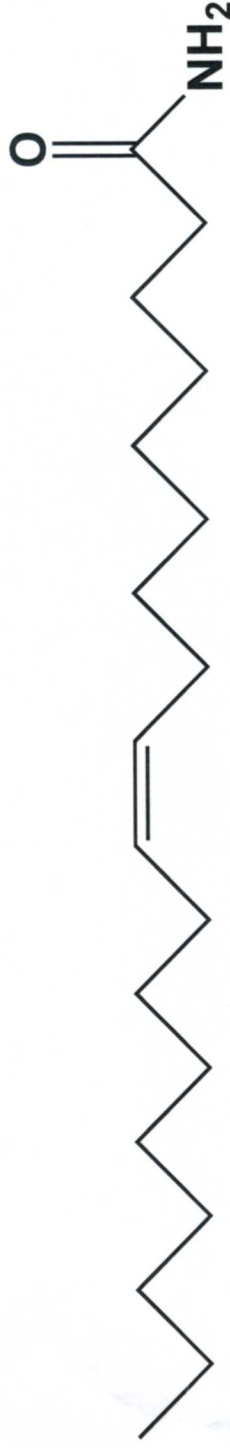


ammonium benzoate

Carboxylic Acids and Derivatives Nomenclature - Examples



(arachidonic acid) : eicosa-5,8,11,14-tetraenoic acid



(oleamide) : 9Z-octadecenamide



1 3 5

2E-hexendioic acid



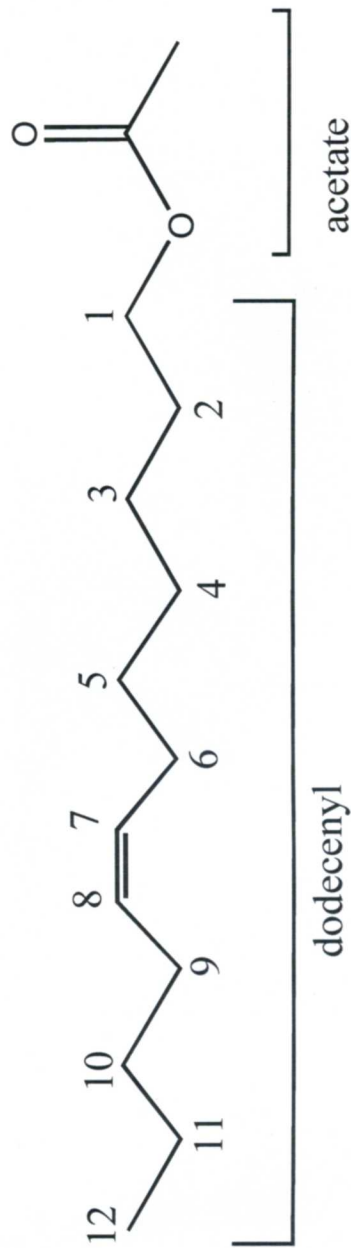
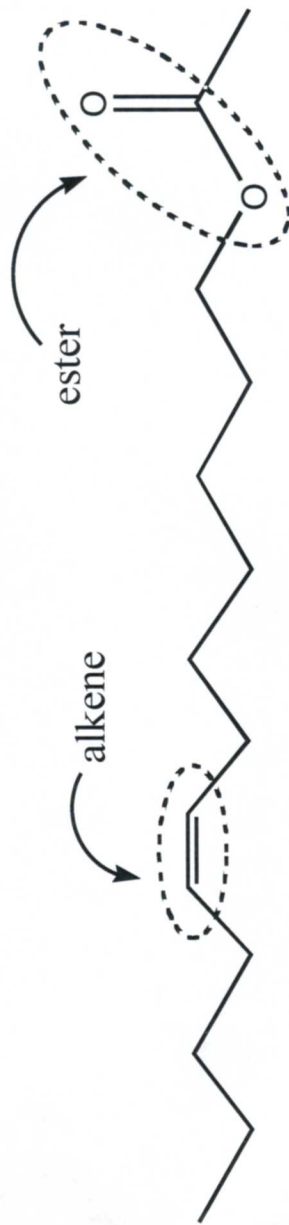
1 3 5

2E,4E-hexadienoic acid

Carboxylic Acids and Derivatives Nomenclature - Examples

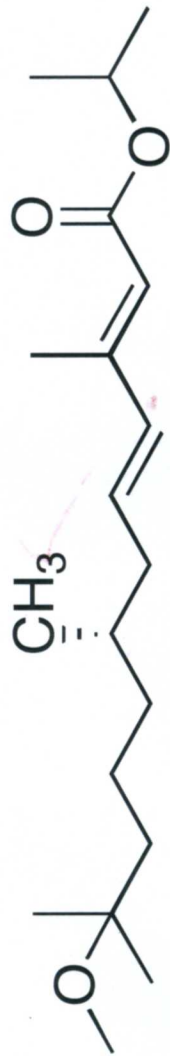


sex pheromone for elephants



7Z-dodecenyl acetate

Carboxylic Acids and Derivatives Nomenclature - Examples

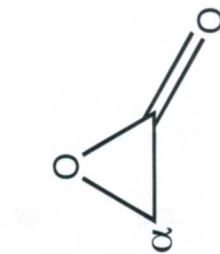


growth inhibitor of fleas
used in anti-flea powder

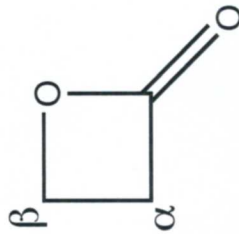
12 10 8 6 4 1

isopropyl 11-methoxy-3,7S,11-trimethyldodeca-2E,4E-dienoate

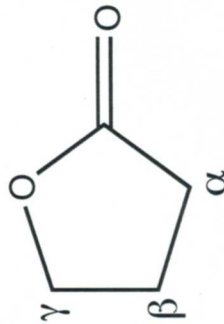
Lactones: cyclic esters



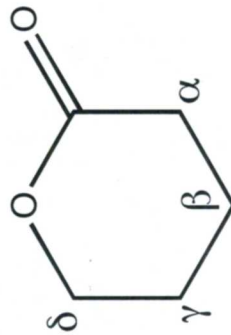
α -lactone



β -lactone



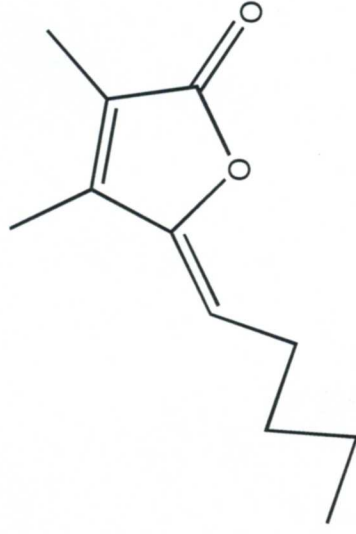
γ -lactone



δ -lactone

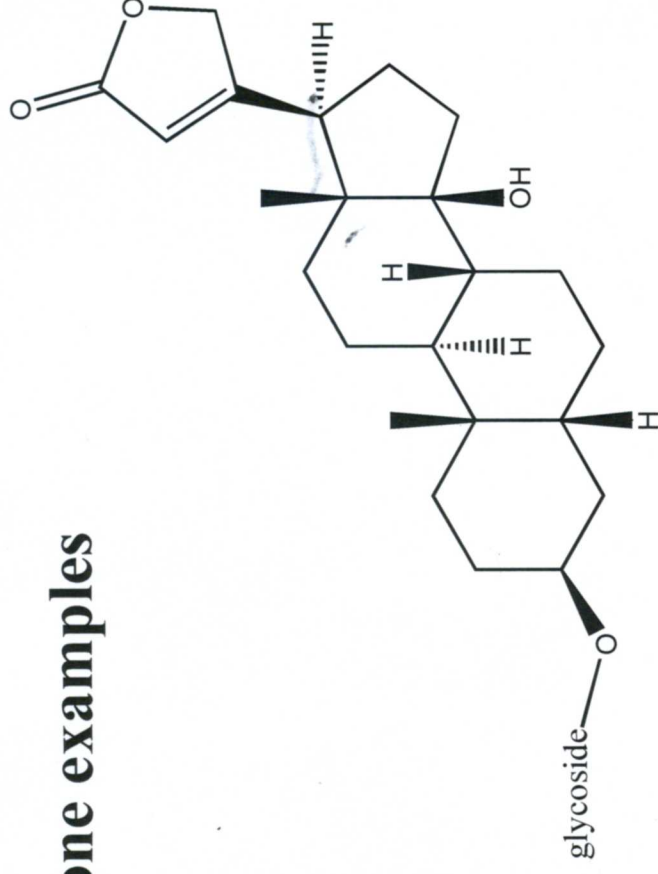
Carboxylic Acids and Derivatives Nomenclature - Examples

Lactones: cyclic esters - γ -lactone examples



bovolide

Butter flavour



Digitoxin (foxglove toxin)
cardiac stimulant