

GTF

If this card does not show
the GT logo on the reverse side,
then all the cards are incorrect.
Change the print parameters
and reprint them.

Constructed by
Loren Williams and Nick Hud

Serine
Ser
S

Valine
Val
V

Cysteine
Cys
C

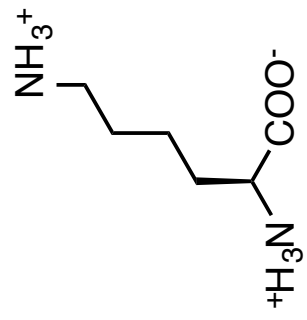
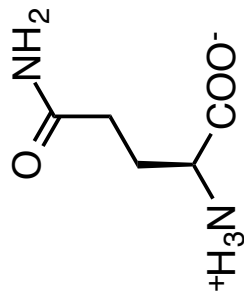
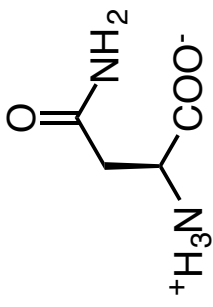
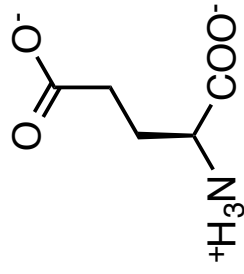
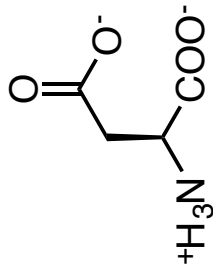
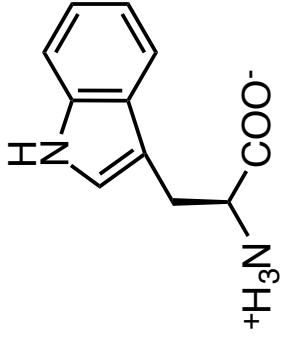
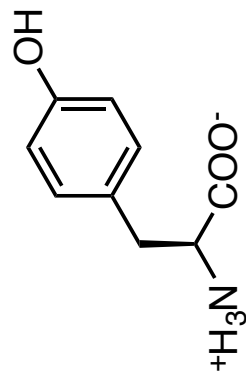
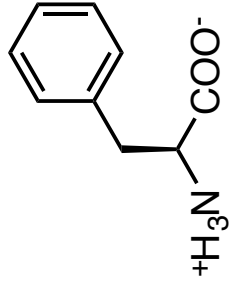
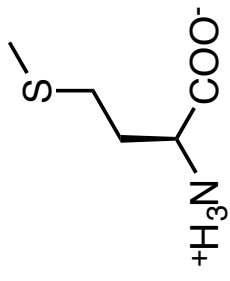
Isoleucine
Ile
I

Alanine
Ala
A

Threonine
Thr
T

Leucine
Leu
L

Glycine
Gly
G



Lysine
Lys
K

Glutamic Acid
Glu
E

Tyrosine
Tyr
Y

Glutamine
Gln
Q

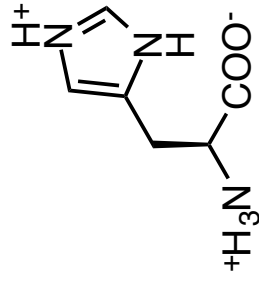
Aspartic Acid
Asp
D

Phenylalanine
Phe
F

Asparagine
Asn
N

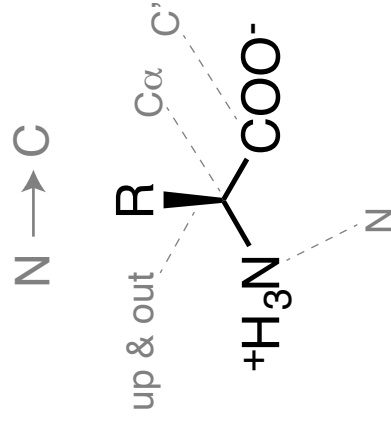
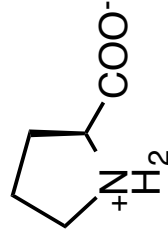
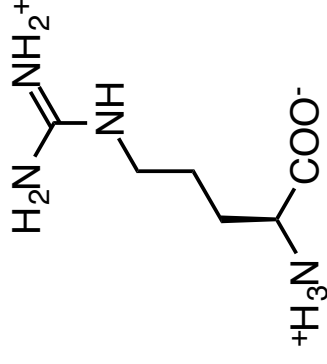
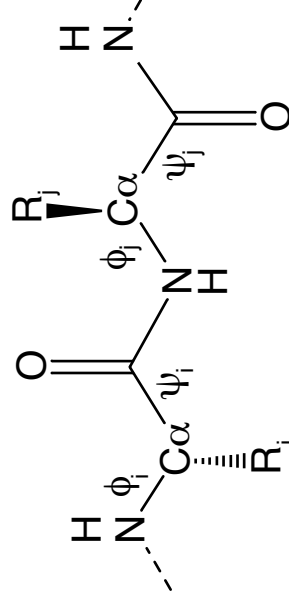
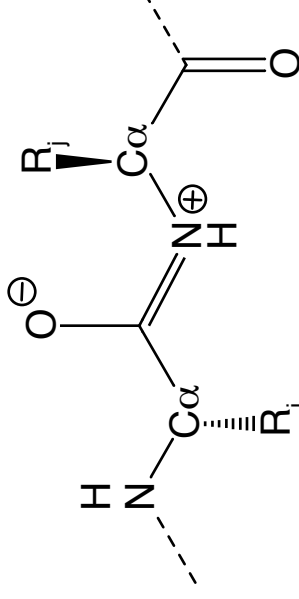
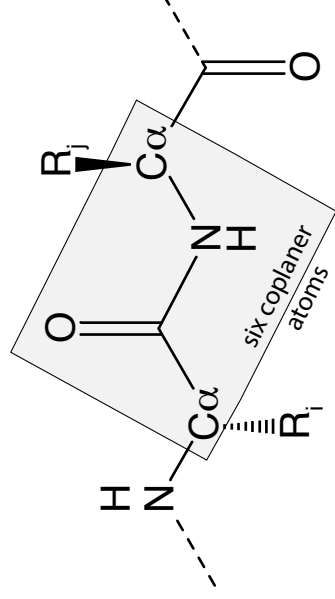
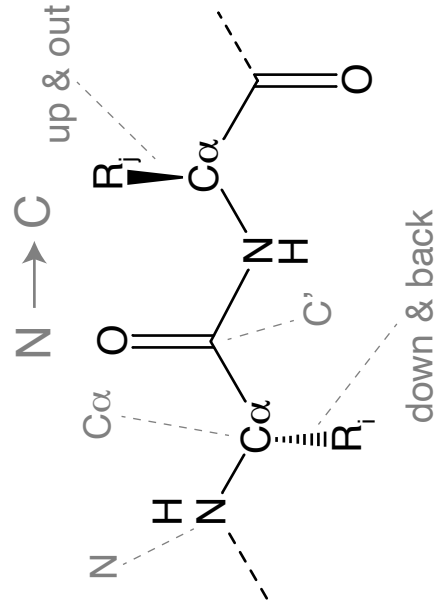
Tryptophan
Trp
W

Methionine
Met
M



pKa = 6.04

Short range repulsion
 Electrostatic (interger charges)
 Dipolar
 Dipole-dipole
 Dipole-induced dipole
 Charge-dipole
 London Dispersion
 Cation- π
 Hydrogen bonding



Peptide Bond

Peptide Bond
 $\phi\psi$

L- α -Amino Acid

Molecular Interactions
in a
globular protein

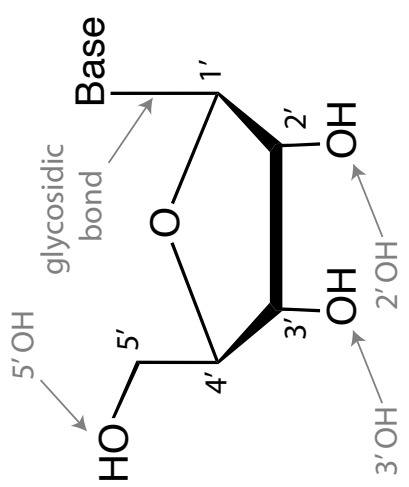
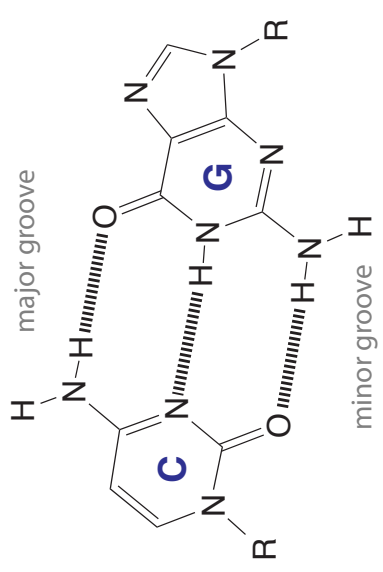
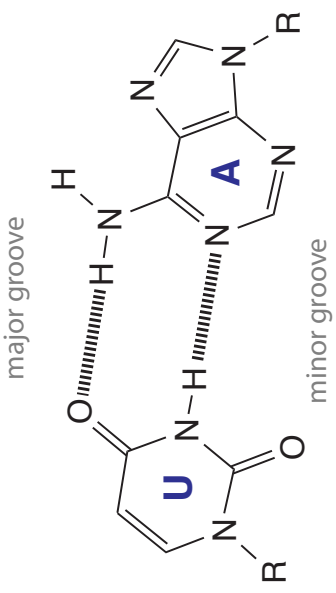
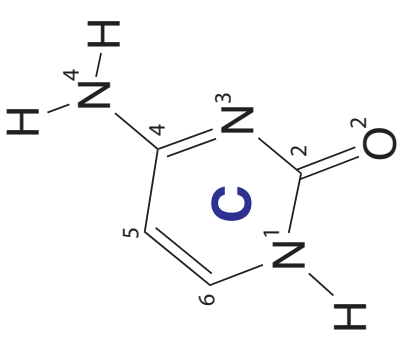
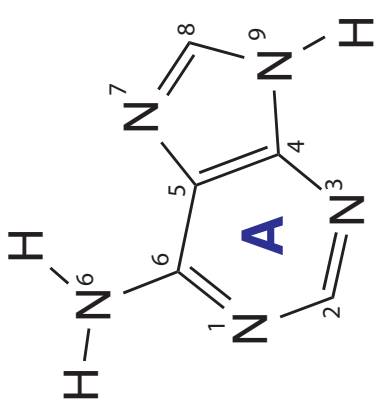
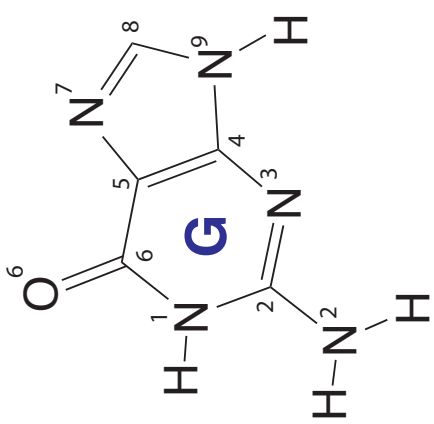
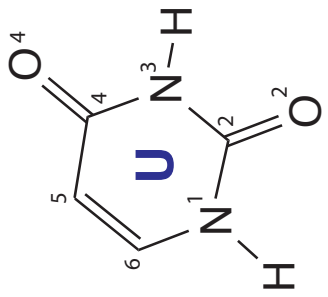
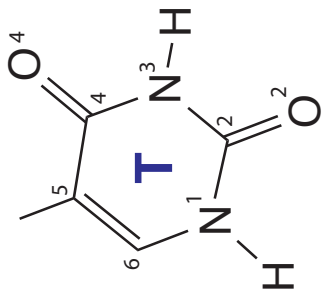
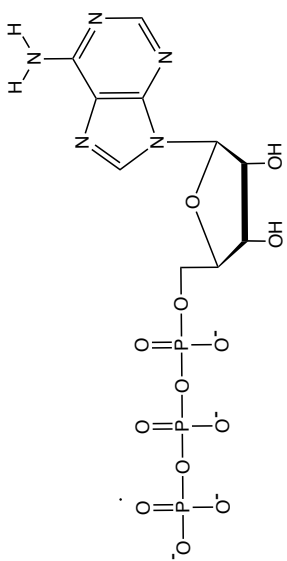
Peptide Bond
resonance

Proline
Pro
P

Histidine
His
H
pKa

Peptide Bond
coplaner atoms

Arginine
Arg
R



Nucleoside
atom numbers

Cytosine
atom numbers

Uracil
atom numbers

C-G Base Pair
major/minor grooves

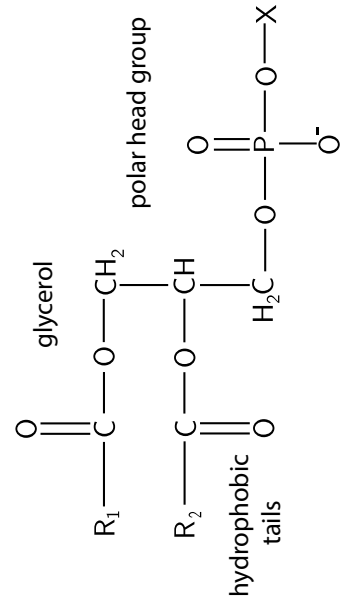
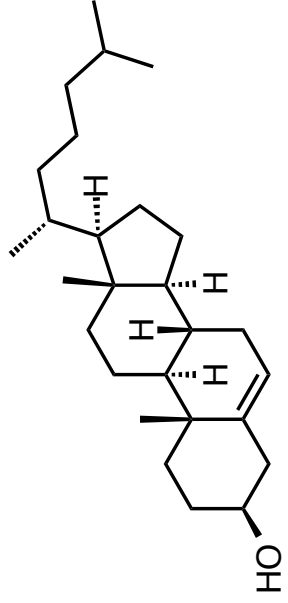
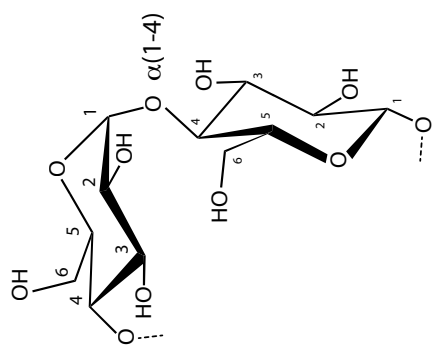
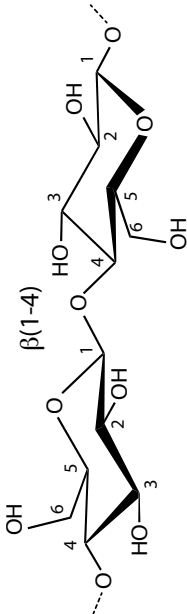
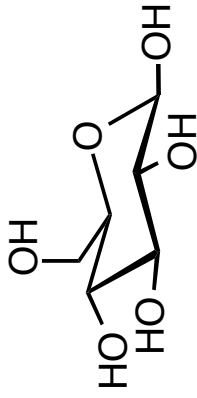
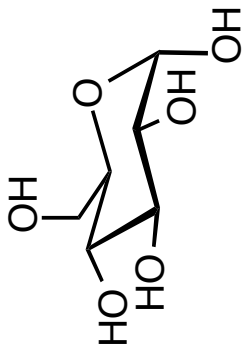
Adenine
atom numbers

Thymine
atom numbers

U-A Base Pair
major/minor grooves

Guanine
atom numbers

ATP



Phospholipid

Cholesterol

Amylose

β -D-Glucose

Cellulose

α -D-Glucose