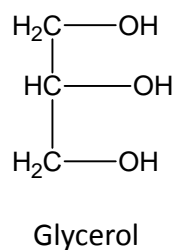
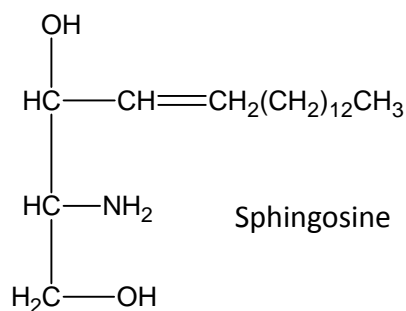
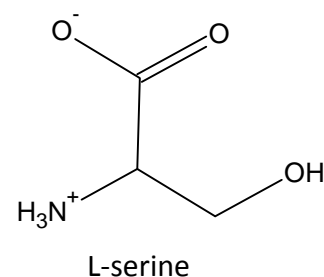
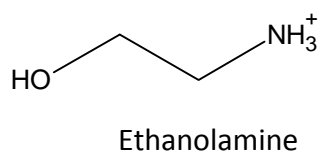
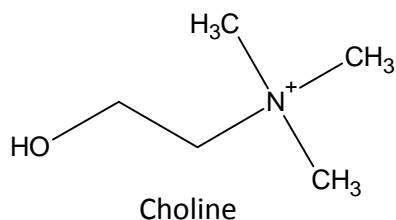
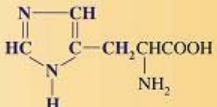
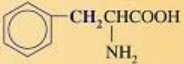
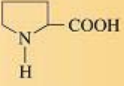
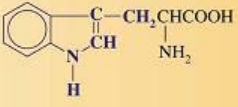
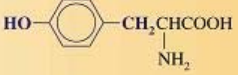


TABLE 28.1 | Some Naturally Occurring Fatty Acids

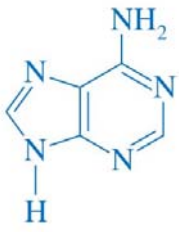
Fatty acid	Number of C atoms	Formula	Solubility (g/100 g water)	Melting point (°C)
Saturated acids				
Butyric acid	4	CH ₃ CH ₂ CH ₂ COOH	∞	-7.9
Caproic acid	6	CH ₃ (CH ₂) ₄ COOH	1.08	-3.4
Caprylic acid	8	CH ₃ (CH ₂) ₆ COOH	0.07	17
Capric acid	10	CH ₃ (CH ₂) ₈ COOH	0.015	31
Lauric acid	12	CH ₃ (CH ₂) ₁₀ COOH	insoluble	44
Myristic acid	14	CH ₃ (CH ₂) ₁₂ COOH	insoluble	59
Palmitic acid	16	CH ₃ (CH ₂) ₁₄ COOH	insoluble	63
Stearic acid	18	CH ₃ (CH ₂) ₁₆ COOH	insoluble	70
Arachidic acid	20	CH ₃ (CH ₂) ₁₈ COOH	insoluble	76
Unsaturated acids*				
Palmitoleic acid	16	CH ₃ (CH ₂) ₅ CH=CH(CH ₂) ₇ COOH	—	0.5
Oleic acid	18	CH ₃ (CH ₂) ₇ CH=CH(CH ₂) ₇ COOH	—	14
Linoleic acid	18	CH ₃ (CH ₂) ₄ CH=CHCH ₂ CH=CH(CH ₂) ₇ COOH	—	-12
Linolenic acid	18	CH ₃ CH ₂ CH=CHCH ₂ CH=CHCH ₂ CH=CH(CH ₂) ₇ COOH	—	-11
Arachidonic acid	20	CH ₃ (CH ₂) ₄ (CH=CHCH ₂) ₄ CH ₂ CH ₂ COOH	—	-50
Eicosapentaenoic acid	20	CH ₃ CH ₂ (CH=CHCH ₂) ₅ CH ₂ CH ₂ COOH	—	-60
Docosahexaenoic acid	22	CH ₃ CH ₂ (CH=CHCH ₂) ₆ CH ₂ CH ₂ COOH	—	-65



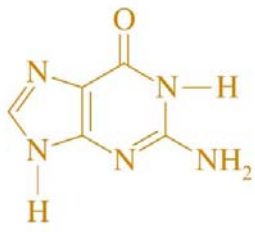
Cheat Sheet – Amino Acids – S12

Name	Abbreviation	Formula
Alanine	Ala	CH_3CHCOOH NH_2
Arginine	Arg	$\text{NH}_2-\text{C}(=\text{NH})-\text{NH}-\text{CH}_2\text{CH}_2\text{CH}_2\text{CHCOOH}$ NH_2
Asparagine	Asn	$\text{NH}_2\text{C}(=\text{O})-\text{CH}_2\text{CHCOOH}$ NH_2
Aspartic acid	Asp	$\text{HOOCCH}_2\text{CHCOOH}$ NH_2
Cysteine	Cys	$\text{HSCH}_2\text{CHCOOH}$ NH_2
Glutamic acid	Glu	$\text{HOOCCH}_2\text{CH}_2\text{CHCOOH}$ NH_2
Glutamine	Gln	$\text{NH}_2\text{C}(=\text{O})\text{CH}_2\text{CH}_2\text{CHCOOH}$ NH_2
Glycine	Gly	HCHCOOH NH_2
Histidine	His	
Isoleucine*	Ile	$\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CHCOOH}$ NH_2
Leucine*	Leu	$(\text{CH}_3)_2\text{CHCH}_2\text{CHCOOH}$ NH_2
Lysine*	Lys	$\text{NH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CHCOOH}$ NH_2
Methionine*	Met	$\text{CH}_3\text{SCH}_2\text{CH}_2\text{CHCOOH}$ NH_2
Phenylalanine*	Phe	
Proline	Pro	
Serine	Ser	$\text{HOCH}_2\text{CHCOOH}$ NH_2
Threonine*	Thr	$\text{CH}_3\text{CH}(\text{OH})\text{CHCOOH}$ NH_2
Tryptophan*	Trp	
Tyrosine	Tyr	
Valine*	Val	$(\text{CH}_3)_2\text{CHCHCOOH}$ NH_2

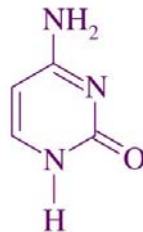
*Amino acids essential in human nutrition



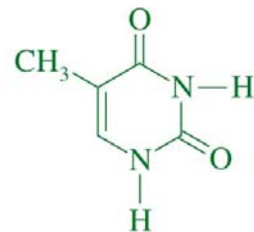
adenine
(6-aminopurine)



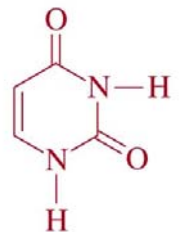
guanine
(2-amino-6-oxypurine)



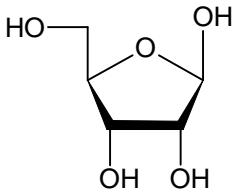
cytosine
(2-oxy-4-aminopyrimidine)



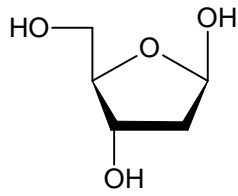
thymine
(2,4-dioxy-5-methylpyrimidine)



uracil
(2,4-dioxypyrimidine)



Ribose



Deoxyribose

Table 31.3 The Genetic Code for Messenger RNA

First nucleotide	Second nucleotide	Third nucleotide and amino acid coded			
		U	C	A	G
U	U	Phe	Phe	Leu	Leu
	C	Ser	Ser	Ser	Ser
	A	Tyr	Tyr	TC*	TC*
	G	Cys	Cys	TC*	Trp
C	U	Leu	Leu	Leu	Leu
	C	Pro	Pro	Pro	Pro
	A	His	His	Gln	Gln
	G	Arg	Arg	Arg	Arg
A	U	Ile	Ile	Ile	Met
	C	Thr	Thr	Thr	Thr
	A	Asn	Asn	Lys	Lys
	G	Ser	Ser	Arg	Arg
G	U	Val	Val	Val	Val
	C	Ala	Ala	Ala	Ala
	A	Asp	Asp	Glu	Glu
	G	Gly	Gly	Gly	Gly

*Termination or nonsense codon