CONTENTS

1.	Introduction	1
1.1	Why analyse food?	4
1.2	Purpose defines approach	5
1.3	The 'analytical chain'	7
1.4	Where things can go wrong	7
1.5	Some rules for getting it right	9
2.	The right approach, the right result	11
2.1	Purpose of the analysis	13
2.2	Sampling and samples	18
2.3	Method development: from R&D to trials	22
2.4	Validation and validated methods	26
2.5	Quality controls and standardisation	29
2.6	Quantitative measurements	31
2.7	Measurement uncertainty, its sources and its estimation	33
2.8	Accreditation	36
2.9	Proficiency testing schemes	37
2.10	Choosing a laboratory to do an analysis	39
3.	Techniques in chemical analysis	42
3.1	Sample preparation and analyte extraction	43
3.2	Gravimetric methods	47
3.3	Chromatography	50
	3.3.1 TLC	53
	3.3.2 HPLC	54
	3.3.3 GLC/GC	55
	3.3.4 Detection systems	58
3.4	Mass spectrometry	60
3.5	Atomic emission and absorption spectrophotometry	64
3.6	Colorimetry/spectrophotometry	66
3.7	X-ray microanalysis	69

3.9	Dumas and Kjeldahl	72
3.10	pH	73
3.11	Water activity	75
3.12	Immunoassay	75
3.13	Electrophoresis	77
3.14	DNA methods	80
	Uses and examples of food analysis	83
4.1	Compositional analysis	84
4.2	Authenticity	89
4.3	Detecting contaminants	94
4.4	Pesticide and veterinary residue detection	99
4.5	Surveillance exercises	103
4.6	Legislation	107
4.7	Flavour, off-flavour and taint analysis	109
4.8	Checking suitability for purpose	112
4.9	Product development	114
4.10	Analysis as a research tool	115
5.	Complications and compromises in food analysis	118
5.1	Dietary fibre: an empirical approach	119
5.2	Global migration: an empirical approach	120
5.3	From nitrogen to protein and meat content	121
5.4	Energy content	126
5.5	Fat content	128
5.6	Sodium versus salt	129
5.7	Vitamins are not one group	131
6.	Conclusions	133
7.	Glossary and common acronyms	135
8.	Selected references, further reading and websites	140
About CCFRA and VAM		144