## Contents

	Introduction	1
	Chapter 1 Clifford algebras	5
1	Quadratic spaces	6
2	Clifford algebras	8
3	Structure of Clifford algebras	22
4	Orthogonal transformations	32
5	Transformers, Clifford groups	38
6	Spin groups	46
7	The Euclidean case	49
8	Spin(V,Q) as a Lie group	65
9	Spin groups as classical Lie groups	77
	Notes and remarks for chapter 1	85
	Chapter 2 Dirac operators and Clifford analyticity	87
1	Cauchy-Riemann operators	87
2	Dirac operators past and present	93
3	Clifford analyticity	97
4	Spaces of analytic functions	108
5	Spaces of Clifford analytic functions I: the upper	
	half-space	119
6	Cauchy integrals and Hilbert transforms on Lipschitz	
	domains	125
7	Spaces of Clifford analytic functions II: Lipschitz domains	135
	Notes and remarks for chapter 2	140

	Chapter 3 Representations of $Spin(V, Q)$	143
1	Elements of representation theory	144
2	Signature, fundamental representations	147
3	Class 1 representations	164
4	Polynomials of matrix argument	173
5	Harmonic polynomials of matrix argument	193
	Notes and remarks for chapter 3	201
	Chapter 4 Constant coefficient operators of Dirac	3
	type	203
1	First-order systems: some general results	203
2	Operators of Dirac type	208
3	Rotation-invariant systems	213
4	The operators $\hat{\delta}_{ au}$	220
5	Critical indices of subharmonicity	232
	Notes and remarks for chapter 4	244
	Chapter 5 Dirac operators and manifolds	247
1	Local theory	248
2	Global theory	263
3	Dirac operators on hyperbolic and spherical space	272
4	Representation theory for $Spin_0(n, 1)$	284
5	Asymptotics for heat kernels	296
6	The index theorem for Dirac operators	309
	Notes and remarks for chapter 5	317
	References	321
	Index	208