

## Table of Contents

Editor's Preface	vii
Preface	ix
<b>CHAPTER I <i>Introduction</i></b>	
1. Metric Spaces and Dimension	1
2. Elements of Homological Algebra	3
3. Locally Convex Spaces	5
4. Linear Maps in Fréchet Spaces	9
5. Integration Theory	12
6. Function Spaces	14
7. References and Comments	16
<b>CHAPTER II <i>Analytic Vector-valued Functions</i></b>	
1. Functions with Special Properties	17
2. The Space $B^1(\Omega, X)$	19
3. The Cauchy-Pompeiu Formula	22
4. Analytic Functions	24
5. Runge's Theorem and its Consequences	30
6. Analytic Functions in Several Variables	33
7. The Equality $B^\infty(\Omega, X) = C^\infty(\Omega, X)$	36
8. Differential Forms	38
9. Runge Domains	44
10. Parametrized Complexes	47
11. References and Comments	58
<b>CHAPTER III <i>Fredholm Theory, Joint Spectrum and Analytic Functional Calculus</i></b>	
1. Spectrum in Banach Algebras	59
2. Characters and Joint Spectrum	62
3. Waelbroeck's Spectrum and One-dimensional Analytic Functional Calculus	66

4.	Non-commutation Properties	79
5.	Stability of the Index of a Complex of Banach Spaces	85
6.	The Joint Spectrum of Operators	98
7.	Fredholm Theory and Joint Spectrum in Hilbert Spaces	107
8.	The Cauchy-Weil Integral	115
9.	Multi-dimensional Analytic Functional Calculus	129
10.	The Spectral Mapping Theorem	137
11.	Martinelli's Formula for Systems of Operators	142
12.	Multi-dimensional Spectral Equivalence	146
13.	Some Applications and Examples	151
14.	References and Comments	162

#### CHAPTER IV *Spectral Decompositions*

1.	Spectral Capacities	165
2.	Analytic Local Spectrum	177
3.	The Local Spectrum of an Operator	185
4.	Residually Decomposable Operators	200
5.	Duality and Decomposability	215
6.	Commutators and Spectral Decompositions	219
7.	Extensions of the Analytic Functional Calculus	230
8.	Non-analytic Local Properties	251
9.	Systems of Unbounded Operators with Functional Calculus	265
10.	Commuting and Anticommuting Self-adjoint Operators	269
11.	References and Comments	280

#### CHAPTER V *Miscellaneous Applications and Examples*

1.	Lie Algebras of Operators	283
2.	Local Capacity	288
3.	Tensor Products of Complexes and Operators	294
4.	Characteristic Numbers and Real Decomposable Operators	307
5.	Growth Conditions and Non-analytic Functional Calculus	319
6.	A Collection of Examples	329
7.	References and Comments	357
	References	359
	Subject index	374
	Notation index	377