

Table of Contents

<i>Preface</i>	ix
Chapter 1. Preliminaries	1
Section 1.1 Notation and Background Material	1
Section 1.2 Weak Topologies	8
Section 1.3 Semicontinuous Functions	13
Section 1.4 Convex Sets and the Separation Theorem	20
Section 1.5 Gap and Excess	28
Chapter 2. Weak Topologies Determined by Distance Functionals	34
Section 2.1 The Wijsman Topology	34
Section 2.2 Hit-and-Miss Topologies and the Wijsman Topology	43
Section 2.3 UC Spaces	54
Section 2.4 The Slice Topology	60
Section 2.5 Complete Metrizability of the Wijsman and Slice Topologies	69
Chapter 3. The Attouch-Wets and Hausdorff Metric Topologies	78
Section 3.1 The Attouch-Wets Topology	78
Section 3.2 The Hausdorff Metric topology	85
Section 3.3 Varying the Metrics	92
Section 3.4 Set Convergence and Strong Convergence of Linear Functionals	100
Chapter 4. Gap and Excess Functionals and Weak Topologies	106
Section 4.1 Families of Gap and Excess Functionals	106
Section 4.2 Presentations of the Attouch-Wets and Hausdorff Metric Topologies	113
Section 4.3 The Scalar Topology and the Linear Topology for Convex Sets	121
Section 4.4 Weak Topologies determined by Infimal Value Functionals	128

Chapter 5. The Fell Topology and Kuratowski-Painlevé Convergence	138
Section 5.1 The Fell Topology	138
Section 5.2 Kuratowski-Painlevé Convergence	145
Section 5.3 Epi-convergence	155
Section 5.4 Mosco Convergence and the Mosco Topology	170
Section 5.5 Mosco Convergence versus Wijsman Convergence	178
Chapter 6. Multifunctions : The Rudiments	183
Section 6.1 Multifunctions	184
Section 6.2 Lower and Upper Semicontinuity for Multifunctions	192
Section 6.3 Outer Semicontinuity versus Upper Semicontinuity	199
Section 6.4 KKM Maps and their Application	208
Section 6.5 Measurable Multifunctions	216
Section 6.6 Two Selection Theorems	228
Chapter 7. The Attouch-Wets Topology for Convex Functions	235
Section 7.1 Attouch-Wets Convergence of Epigraphs	235
Section 7.2 Continuity of Polarity and the Attouch-Wets Topology	241
Section 7.3 Regularization of Convex Functions and Attouch-Wets Convergence	250
Section 7.4 The Sum Theorem	256
Section 7.5 Convex Optimization and the Attouch-Wets Topology	264
Chapter 8. The Slice Topology for Convex Functions	270
Section 8.1 Slice and Dual Slice Convergence of Convex Functions	270
Section 8.2 Convex Duality and the Slice Topology	276
Section 8.3 Subdifferentials of Convex Functions and the Slice Topology	287
Section 8.4 Stability of the Geometric Ekeland Principle	299
Notes and References	306
Bibliography	315
Symbols and Notation	331
Subject Index	335