# Table of Contents

**Preface**  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