# TABLE OF CONTENTS

Chapter 1.  **General introduction**  

Chapter 2.  **The thalamus**  
   2.1 Clinical significance of atrophy and white matter mean diffusivity within the thalamus of multiple sclerosis patients  
   2.2 Thalamic tract integrity changes are associated with cognition and disinhibition in multiple sclerosis  
   2.3 Thalamus structure and function determine severity of cognitive impairment in multiple sclerosis

Chapter 3.  **The hippocampus**  
   3.1 Structural and functional hippocampal changes in multiple sclerosis patients with intact memory function  
   3.2 Functional adaptive changes within the hippocampal memory system of patients with multiple sclerosis  
   3.3 Memory impairment in multiple sclerosis: relevance of hippocampal activation and hippocampal connectivity

Chapter 4.  **The dorsolateral prefrontal cortex**  
   4.1 Functional correlates of cognitive dysfunction in multiple sclerosis: A multicenter fMRI study  
   4.2 rTMS affects brain activation, functional connectivity and working memory performance in multiple sclerosis patients

Chapter 5.  **Understanding cognitive impairment**  
   5.1 Cognitive impairment in MS: impact of white matter integrity, gray matter volume, and lesions  
   5.2 Indicators for cognitive performance and subjective cognitive complaints in multiple sclerosis: a role for advanced MRI?

Chapter 6.  **Summary, general discussion and future perspectives**

**Nederlandse samenvatting**  
**Dankwoord**  
**List of publications**  
**Curriculum Vitae**