Contents

1.	In Defence of Scientism	1
	Don Ross, James Ladyman, and David Spurrett	
	1.1 Naturalistic metaphysics	1
	1.2 Neo-scholastic metaphysics	7
	1.3 The principle of naturalistic closure	27
	1.4 The primacy of physics	38
	1.5 Unity of science and reductionism	45
	1.6 Fundamental and other levels	53
	1.7 Stances, norms, and doctrines	57
2.	Scientific Realism, Constructive Empiricism, and Structuralism	66
	James Ladyman and Don Ross	
	2.1 Scientific realism	68
	2.2 Theory change	83
	2.3 Structuralism	93
	2.4 What is structural realism?	122
	2.5 Conclusion	129
3.	Ontic Structural Realism and the Philosophy of Physics	130
	James Ladyman and Don Ross	
	3.1 Identity and individuality in quantum mechanics	132
	3.2 Individuality and spacetime physics	141
	3.3 Objectivity and invariance	145
	3.4 The metaphysics of relations	148
	3.5 Objections to ontic structuralism	154
	3.6 Mathematical structure and physical structure	159
	3.7 Further reflections on physics	161
	3.8 Conclusion	189

Content

xii

4. Rainforest Realism and the Unity of Science	190
Don Ross, James Ladyman, and John Collier	
4.1 Special sciences and disunity hypotheses	190
4.2 Dennett on real patterns	196
4.3 Concepts of information in physics and metaphysics	210
4.4 Rainforest realism	220
4.5 Fundamental physics and special science	238
5. Causation in a Structural World	258
Don Ross, James Ladyman, and David Spurrett	
5.1 Russell's naturalistic rejection of causation	258
5.2 Philosophers and folk on causation	266
5.3 Causes in science	269
5.4 Letting science hold trumps	274
5.5 Laws in fundamental physics and the special sciences	281
5.6 Real patterns, types, and natural kinds	290
6. Conclusion—Philosophy Enough	298
Don Ross and James Ladyman	
6.1 Why isn't this Dennett? Why isn't it Kant?	298
6.2 A reductio	300
6.3 Neo-positivism	303
References	
Index	