

Contents

Chapter I. Existence and Uniqueness

§1. The abstract uniqueness theorem	3
§2. Notations, and the uniqueness theorem in $\text{Mod}(G)$	9
§3. Existence of the cohomological functor on $\text{Mod}(G)$	20
§4. Explicit computations	29
§5. Cyclic groups.....	32

Chapter II. Relations with Subgroups

§1. Various morphisms	37
§2. Sylow subgroups.....	50
§3. Induced representations	52
§4. Double cosets	58

Chapter III. Cohomological Triviality

§1. The twins theorem	62
§2. The triplets theorem.....	68
§3. Splitting module and Tate's theorem.....	70

Chapter IV. Cup Products

§1. Erasability and uniqueness.....	73
§2. Existence.....	83
§3. Relations with subgroups	87
§4. The triplets theorem.....	88
§5. The cohomology ring and duality	89
§6. Periodicity	95
§7. The theorem of Tate-Nakayama.....	98
§8. Explicit Nakayama maps	101

Chapter V. Augmented Products

§1. Definitions	109
§2. Existence	112
§3. Some properties	113

Chapter VI. Spectral Sequences

§1. Definitions	116
§2. The Hochschild-Serre spectral sequence	118
§3. Spectral sequences and cup products	121

Chapter VII. Groups of Galois Type (Unpublished article of Tate)

§1. Definitions and elementary properties	123
§2. Cohomology	128
§3. Cohomological dimension	138
§4. Cohomological dimension ≤ 1	143
§5. The tower theorem	149
§6. Galois groups over a field	150

Chapter VIII. Group Extensions

§1. Morphisms of extensions	156
§2. Commutators and transfer in an extension	160
§3. The deflation	163

Chapter IX. Class formations

§1. Definitions	166
§2. The reciprocity homomorphism	171
§3. Weil groups	178

Chapter X. Applications of Galois Cohomology in Algebraic Geometry (from letters of Tate)

§1. Torsion-free modules	189
§2. Finite modules	191
§3. The Tate pairing	195
§4. $(0, 1)$ -duality for abelian varieties	199
§5. The full duality	201
§6. Brauer group	202
§7. Ideles and idele classes	210
§8. Idele class cohomology	212