Chapter 8. Symmetries of Knots
Study Guide

The following is a brief list of topics covered in Chapter 8 of Charles Livingston's *Knot Theory*, The Carus Mathematical monographs, Volume 24 (MAA, 1993). This list is not meant to be comprehensive, but only gives a list of several important topics. You should also carefully study the proofs given in class and the homework problems.

8.1. Amphicheiral and Reversible Knots.

Reversible knot, positive/negative amphicheiral knot, strongly reversible knot, strongly positive/negative amphicheiral knot.

8.2. Periodic Knots.

Periodic knot of period q, quotient knot, covering link, linking number λ, the number of complements in L is the greatest common divisor of the linking number λ and q (Theorem 8.2.1).

8.3. The Murasugi Conditions.

The Murasugi Conditions (Theorem 8.3.2), irreducible polynomials over a field, applications of the Murasugi Conditions, the total degree and the mod p total degree of a polynomial.

8.4. Periodic Seifert Surfaces and Edmonds' Theorem.

Equivariant Seifert surface, a period q know has a period q equivariant Seifert surface (Theorem 8.4.3), Riemann-Hurwitz Formula, relationship between the linking number λ and the number Λ of points of intersection of the Seifert surface with the z-axis (Theorem 8.4.5), Edmond's Conditions (Corollary 8.4.6).

8.5. Applications of the Murasugi and Edmonds Conditions.

Three corollaries following from the Murasugi and Edmonds Conditions (Corollaries 8.5.7, 8.5.8, and 8.5.9) and their applications.

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