20-1350 Topics in Knot Theory

Topics (not in order).

1. Introduction to knots. Knot colouring, prime knots, alternating knots.
2. The fundamental group, quandles.
3. The Alexander polynomial.
4. The Jones polynomial (incl. Thistlethwaite).
5. Khovanov homology.
6. Braids, combing, Markov traces, Hecke algebras, HOMFLY-PT.
7. Finite type invariants.
8. Virtual knots.
9. Quantum groups and RT.
10. A word about 3-manifolds.
11. Hyperbolic invariants.