

Bibliography: Introduction to Knot Theory ETH Spring Semester 2015

Books that can be used in secondary school (= Gymnasium):

- Colin C. Adams, *The Knot book: An elementary introduction to the mathematical theory of knots*, W.H. Freeman and Company, New York, 1994.
- M. Akveld, *Knoten in der Mathematik: Ein Spiel mit Schnüren, Bildern und Formeln*, Orell Füssli Verlag, Zürich, 2007 (directly obtainable from me).
- M. Akveld, A. Jobbings *Knots unravelled: from string to mathematics*, Arbelos (<http://www.arbelos.co.uk>), York, Fall 2011.
- A. Sossinsky, *Mathematik der Knoten: Wie eine Theorie entsteht*, Rowohlt Taschenbuch Verlag, Hamburg, 2000.

General books about knots – accessible to (under-)graduate students:

- M.A. Armstrong, *Basic Topology*, Undergraduate Texts in Mathematics, Springer-Verlag, 1983 – Chapter 10 is devoted to knots.
- G. Burde, H. Zieschang, *Knots*, Walter de Gruyter & Co., Berlin, 1985.
- A.Kawauchi, *A Survey of Knot Theory*, Birkhäuser Verlag, Basel, 1996.
- W.B.R. Lickorish, *An Introduction to Knot Theory*, Springer-Verlag New York, 1997.
- C. Livingston, *Knotentheorie für Einsteiger*, Vieweg, 1995 (also available in English).
- K. Murasugi, *Knot Theory & Its Applications*, Chapters 5 and 6, Birkhäuser Boston, 2008.
- J. Roberts, *Knots Knotes*, unpublished lecture notes, 2010, <http://math.ucsd.edu/~justin/papers.html>.
- D. Rolfsen, *Knots and Links*, AMS Chelsea Publishing, 2003.

Interesting Links:

- The Knot Atlas, <http://katlas.math.toronto.edu/wiki/>
- The KnotPlot Site, <http://knotplot.com/>
- Visualising Seifert surfaces, <http://www.win.tue.nl/~vanwijk/seifertview/>

Website of the course:

<https://www.math.ethz.ch/education/bachelor/lectures/fs2015/math/knotentheorie>

Here are some references to learn more about the Classification of Surfaces:

- The following book gives a very intuitive introduction to surfaces and 3-manifolds, an absolute must: J.Weeks, *The shape of space*, Marcel Dekker, Inc. 2002.
- This book gives a very good introduction to surfaces: S.Goodmann, *Beginning Topology*, AMS, 2005.
- A copy of Conway's ZIP Proof can be found on the homepage of the lecture course - an interesting proof of the classification of surfaces.
- Here a classic: W.S.Massey, *Algebraic Topology: an Introduction*, Springer Graduate Texts in Mathematics, 1977.
- E.Bloch, *A first course in geometric topology and differential topology*, Birkhäuser, 1996.