Wintersemester 2019/20 Claudia Scheimbauer

Algebraic Topology

Time and place:	Mon 14:00–16:00,	Room 00.09.022	
	Tue 8:30–10:00,	Room 00.07.014	
Exercise class:	Fri 8:30–10:00	Room 00.07.014	will be given by Eilind Karlsson, first exercise: Friday, Oct. 25

Website with further material, including exercise sheets:
`https://www.groups.ma.tum.de/algebra/scheimbauer/` ⇒ Lehre ⇒ Algebraic Topology

1. Topic of course

Algebraic topology is the study of topological spaces with algebraic methods. Topics will include:

- brief introduction to point-set topology
- fundamental group
- covering spaces
- classification of 2-dimensional manifolds
- introduction to homology
- simplicial sets

References

[1] James R. Munkres. *Topology*. Prentice Hall, Inc., Upper Saddle River, NJ, 2000. Second edition of [MR0464128].

[2] Gerd Laures and Markus Szymik. *Grundkurs Topologie*. Springer-Lehrbuch. [Springer Textbook]. Springer Spektrum, Berlin, revised edition, 2015.

[3] Allen Hatcher. *Algebraic topology*. Cambridge University Press, Cambridge, 2002. available at `https://pi.math.cornell.edu/~hatcher/AT/AT.pdf`.

[4] William Fulton. *Algebraic topology*, volume 153 of *Graduate Texts in Mathematics*. Springer-Verlag, New York, 1995. A first course.

[5] Klaus Jänich. *Topologie*. Springer-Verlag, Berlin, eighth edition, 2005.

[6] Lynn Arthur Steen and J. Arthur Seebach, Jr. *Counterexamples in topology*. Dover Publications, Inc., Mineola, NY, 1995. Reprint of the second (1978) edition.