Topology – Course syllabus

BMS Basic Course, TU Berlin, winter 14/15
Course website: http://www3.math.tu-berlin.de/geometrie/Lehre/WS14/Topology/

Lectures
Mon, 8:30 – 10:00 MA 313 Prof. John M. Sullivan
Mon, 10:15 – 11:45 MA 313 Prof. John M. Sullivan

Exercises
Wed, 14:15 – 15:45 MA 313 Florian Frick

Tutorials
TBA Sören Berg

Contact information

Prof. John M. Sullivan MA 802 sullivan@math.tu-berlin.de
Florian Frick MA 801 frick@math.tu-berlin.de
Sören Berg MA 403 berg@math.tu-berlin.de

Office hours to be announced.

Course work

There will be weekly homework assignments, to be handed in on Mondays between the two lectures. Criteria to obtain a Schein: 50% of the homework points and successful completion of a mid-term exam. There will be a final oral exam (in German or English).

Topics

1. Point-set topology: basic definitions, theorems, and examples
2. Covering spaces and the fundamental group: group actions, deck transformations, classification and existence of covering spaces, van Kampen’s theorem
3. Homology: Hurewicz theorem, Eilenberg–Steenrod axioms, homology and fundamental group of spheres and tori, fixed point theorems

Literature

Our primary textbook will be Allen Hatcher, Algebraic Topology, Cambridge University Press available online at www.math.cornell.edu/~hatcher/AT/ATpage.html

Additional textbooks are (the last three books are in German)

- James Munkres, Topology, Pearson
- Glen E. Bredon, Topology and Geometry, vol. 139 of Graduate Texts in Mathematics, Springer
- Klaus Jänich, Topologie, Springer
- Tammo tom Dieck, Topologie, de Gruyter
- Wolfgang Lück, Algebraische Topologie, Vieweg