

**Introduction to Topological Groups**  
**Selected Literature**

*Source Book for this Course*

Hofmann, K. H., and S. A. Morris, *The Structure of Compact Groups*, de Gruyter Verlag, Berlin, 1998, xvii+834pp.

Second Completely Revised, Corrected and Augmented Edition 2006, xviii+860pp.  
 To appear at de Gruyter Verlag, Berlin.

It will come as not surprise that I advertise Hofmann and Morris; the earlier chapters arose from courses I taught at various universities, including at TU Darmstadt. The book is available through bookshops, but due to its length it is not cheap. Also, a second revised edition will appear in July of 2006.

*Some Literature on General Topological Groups*

Nicholas Bourbaki, *Topologie générale*, Chap. 4: Groupes topologiques, Hermann Paris, 1971,

Hewitt E., and K. A. Ross, *Abstract Harmonic Analysis I and II*, Springer Verlag, Berlin etc. 1963, viii+519 pp., respectively, 1970, *ibidem*, ix + 771 pp.

Hofmann, K. H., *Introduction to Topological Groups*, Lecture Notes, TU Darmstadt, 2006, pdf-file, 57 pp.

Pontryagin, L. S., *Topologische Gruppen*, Teile 1 und 2, B. G. Teubner, Leipzig, 1957, 263 S., bzw. 1958, 308 S. (Deutsche Übersetzung der zweiten Auflage des russischen Originals, 1954)

These are general sources on topological groups; the list is of course incomplete. Pontryagin is a classical text and is still excellent, but not necessarily introductory. Another classic with a strong analysis flavor in Hewitt and Ross, and it remains modern today. Bourbaki is very elegant and general, but hardly suitable as an introduction for the beginner.

A book on a pro-Lie groups and locally compact groups that Morris and I have written in the last couple of years has been completed and is in the process of being published by the Publishing House of the European Mathematical Society in Zurich.

*Some Introductory Literature into Topology*

Since some background in general topology is desirable in a course on topological groups, a list of reading material on general topology (taken from the background material of my course on topology) is reproduced in the following:

Nicholas Bourbaki, *Topologie générale*, Chap. 1-4, Hermann Paris, 1971, Chap. 5-10, *ibid.*, 1974.

Tammo tom Dieck, *Topologie*, de Gruyter, Berlin 2000<sup>2</sup>, x+454SS.

Ryszard Engelking, *General Topology*. Second edition. Sigma Series in Pure Mathematics, 6. Heldermann Verlag, Berlin, 1989, viii+529 pp.

Hofmann, K. H., *Introduction to Topology*, Lecture Notes of a Course taught in the summer of 2005 at TU Darmstadt, pdf-file on the website for this course "<http://www.mathematik.tu-darmstadt.de/lehrrmaterial/SS2006/CompGroups/>".

John L. Kelly, *General Topology*, D. Van Nostrand Company, Inc., Princeton, 1955, xiv+298 pp.

Kenneth Kunen, *Set Theory*, North-Holland Publishing Company, Amsterdam, 1980.

Kenneth Kunen and J. Vaughan, eds, *Handbook of Set-theoretic Topology*, North-Holland Publishing Company, Amsterdam, 1984.

Sidney A. Morris, *Topology without Tears*, 2003,  
<http://uob-community.ballarat.edu.au/~sidmorris/topology.htm>  
Get password for downloading from  
[s.morris@ballarat.edu.au](mailto:s.morris@ballarat.edu.au)

Bodo von Querenburg, *Mengentheoretische Topologie*, Springer-Verlag Berlin usw., 2001<sup>3</sup>

Lynn A. Steen and J. Arthur Seebach, Jr., *Counterexamples in Topology*, Holt, Rinehart and Winston, Inc. New York etc., 1970, xiii+210

Steven Vickers, *Topology via Logic*, Cambridge University Press 1990, xiii+200 pp.

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Again, this list is incomplete. The German textbooks are those of tom Dieck and Querenburg; they have different objectives and are both very good. The latter corresponds in spirit to the Darmstadt course on topology.

Bourbaki is a very systematic source which remains valid; the original is in French. Kelley's book is a classic in the English language which has been very influential in the teaching of general topology in the second half of the last century.

Engelking's book is up-to-date and encyclopedic—and it is available in the bookshops.

Sidney Morris' book is on the web; he has been contacted by me and will be glad to give the required password for the downloading of his material to the students of this course. This is a very gentle introduction to topology.