

# 《代数拓扑中微分形式》

## 图书基本信息

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## 前言

The guiding principle in this book is to use differential forms as an aid in exploring some of the less digestible aspects of algebraic topology. Accordingly, we move primarily in the realm of smooth manifolds and use the de Rham theory as a prototype of all of cohomology. For applications to homotopy theory we also discuss by way of analogy cohomology with arbitrary coefficients. Although we have in mind an audience with prior exposure to algebraic or differential topology, for the most part a good knowledge of linear algebra, advanced calculus, and point-set topology should suffice. Some acquaintance with manifolds, simplicial complexes, singular homology and cohomology, and homotopy groups is helpful, but not really necessary. Within the text itself we have stated with care the more advanced results that are needed, so that a mathematically mature reader who accepts these background materials on faith should be able to read the entire book with the minimal prerequisites. There are more materials here than can be reasonably covered in a one-semester course. Certain sections may be omitted at first reading without loss of continuity. We have indicated these in the schematic diagram that follows. This book is not intended to be foundational; rather, it is only meant to open some of the doors to the formidable edifice of modern algebraic topology. We offer it in the hope that such an informal account of the subject at a semi-introductory level fills a gap in the literature. It would be impossible to mention all the friends, colleagues, and students whose ideas have contributed to this book. But the senior author would like on this occasion to express his deep gratitude, first of all to his primary topology teachers E. Specker, N.

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## 内容概要

《代数拓扑中微分形式》内容为：The guiding principle in this book is to use differential forms as an aid in exploring some of the less digestible aspects of algebraic topology. Accordingly, we move primarily in the realm of smooth manifolds and use the de Rham theory as a prototype of all of cohomology. For applications to homotopy theory we also discuss by way of analogy cohomology with arbitrary coefficients. Although we have in mind an audience with prior exposure to algebraic or differential topology, for the most part a good knowledge of linear algebra, advanced calculus, and point-set topology should suffice. Some acquaintance with manifolds, simplicial complexes, singular homology and cohomology, and homotopy groups is helpful, but not really necessary. Within the text itself we have stated with care the more advanced results that are needed, so that a mathematically mature reader who accepts these background materials on faith should be able to read the entire book with the minimal prerequisites.

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## 精彩短评

- 1、该书评价很高，买来拜读一下。。
- 2、非常同意~~~我和同学正在讨论这本书，不过进展龟速，讨论了半年才讨论到sphere bundle
- 3、对于从微分拓扑角度研究流形的人来说，这是最好的代数拓扑教材。  
我印象尤其深刻的是书中关于谱序列的讲解和chern class的定义。这本书在定义chern class时采用了跟Milnor的书不同的方法。它用vector bundle的projectivization bundle定义chern class，然后在验证这个定义满足公理。如果用公理化的方法定义，或者采用trace那种定义，很多书都不会再去考虑定义出来的chern class跟projectivization bundle的关系。要想学到这个关系在Griffith&Harris的500多页才会遇到！而这个关系很好用。尤其是对于需要学习equivariant cohomology，Gromov-Witten theory的人来说，这是必备工具！
- 4、这本书写得非常好，很多很牛的定理不经意间就被证明了，但读起来需要一定的基础
- 5、82教材
- 6、需要一定同调代数基础
- 7、读了前两章。比较容易读，启发性一般。
- 8、书是好书，但是印刷质量太次，居然脱页了。怕麻烦，我才没申请退货。

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