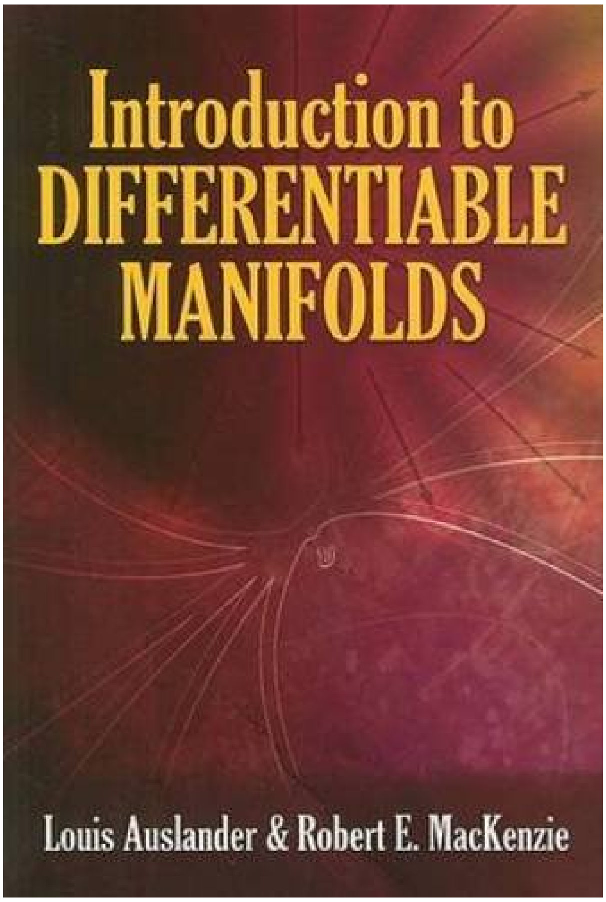
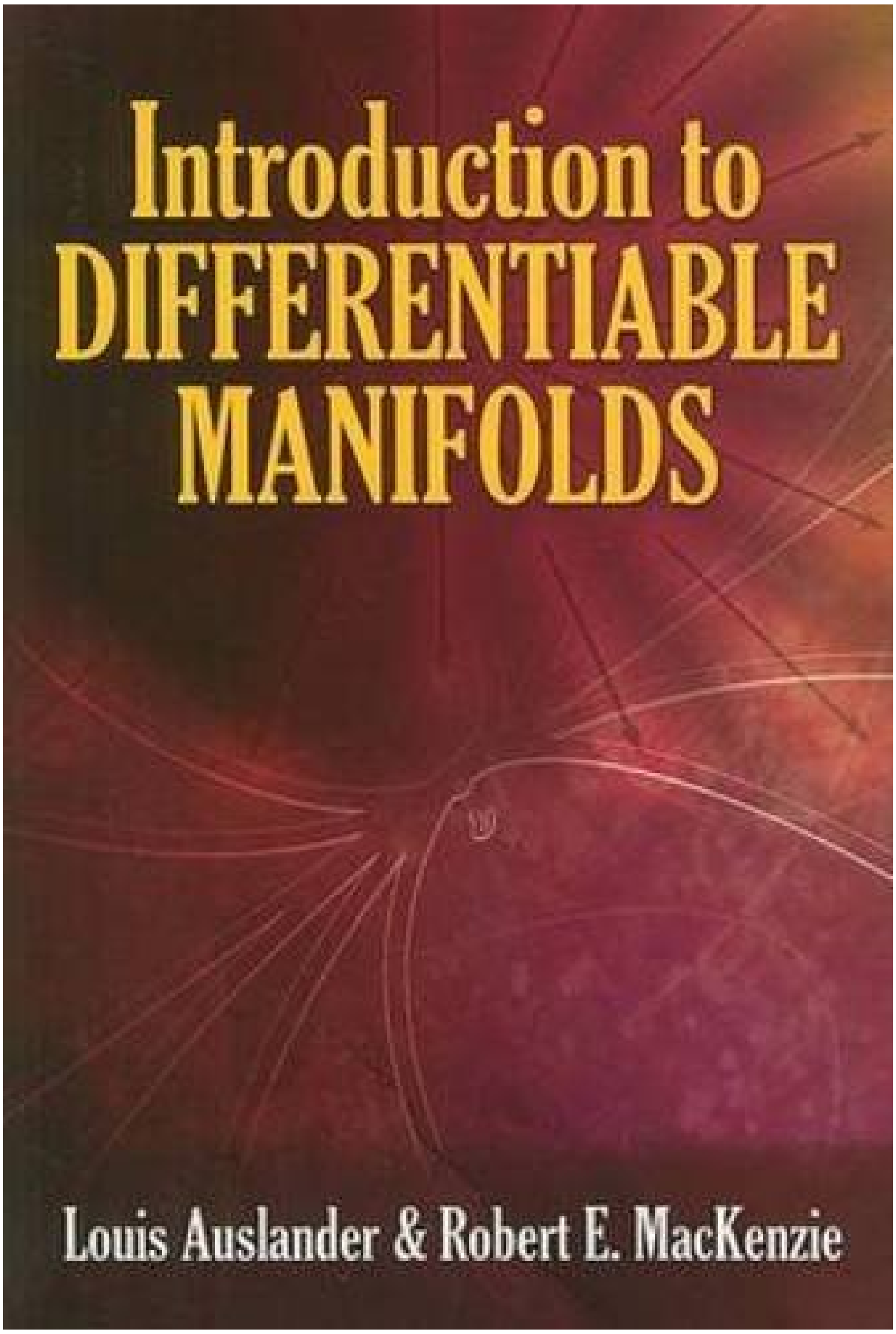
INTRODUCTION TO DIFFERENTIABLE MANIFOLDS (DOVER BOOKS ON MATHEMATICS) BY LOUIS AUSLANDER, ROBERT E. MACKENZIE




Introduction to
DIFFERENTIABLE
MANIFOLDS
Louis Auslander & Robert E. MacKenzie

INTRODUCTION TO DIFFERENTIABLE MANIFOLDS (DOVER BOOKS ON MATHEMATICS) BY LOUIS AUSLANDER, ROBERT E. MACKENZIE PDF

By downloading this soft file e-book **Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie** in the online web link download, you are in the first action right to do. This website truly supplies you ease of the best ways to get the very best book, from finest seller to the brand-new released book. You can find a lot more e-books in this website by visiting every web link that we offer. Among the collections, Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie is among the most effective collections to market. So, the very first you obtain it, the first you will get all good about this publication Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie

INTRODUCTION TO DIFFERENTIABLE MANIFOLDS (DOVER BOOKS ON MATHEMATICS) BY LOUIS AUSLANDER, ROBERT E. MACKENZIE PDF

Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie. Offer us 5 minutes as well as we will show you the very best book to check out today. This is it, the Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie that will be your ideal selection for much better reading book. Your five times will not invest wasted by reading this internet site. You could take guide as a resource to make far better concept. Referring the books Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie that can be situated with your demands is at some time tough. Yet here, this is so easy. You can locate the very best thing of book Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie that you could review.

Yet, what's your matter not also loved reading *Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie* It is a wonderful activity that will constantly provide fantastic benefits. Why you end up being so unusual of it? Many points can be reasonable why individuals do not prefer to read Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie It can be the dull activities, the book Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie collections to read, also lazy to bring nooks everywhere. But now, for this Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie, you will start to love reading. Why? Do you recognize why? Read this page by finished.

Beginning with visiting this site, you have attempted to start nurturing reviewing a book Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie This is specialized site that sell hundreds compilations of publications Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie from lots resources. So, you will not be tired anymore to select guide. Besides, if you additionally have no time at all to browse the book Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie, merely sit when you remain in office and also open the web browser. You could discover this Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie inn this internet site by hooking up to the internet.

INTRODUCTION TO DIFFERENTIABLE MANIFOLDS (DOVER BOOKS ON MATHEMATICS) BY LOUIS AUSLANDER, ROBERT E. MACKENZIE PDF

The first book to treat manifold theory at an introductory level, this text surveys basic concepts in the modern approach to differential geometry. The first six chapters define and illustrate differentiable manifolds, and the final four chapters investigate the roles of differential structures in a variety of situations.
Starting with an introduction to differentiable manifolds and their tangent spaces, the text examines Euclidean spaces, their submanifolds, and abstract manifolds. Succeeding chapters explore the tangent bundle and vector fields and discuss their association with ordinary differential equations. The authors offer a coherent treatment of the fundamental concepts of Lie group theory, and they present a proof of the basic theorem relating Lie subalgebras to Lie subgroups. Additional topics include fiber bundles and multilinear algebra. An excellent source of examples and exercises, this graduate-level text requires a solid understanding of the basic theory of finite-dimensional vector spaces and their linear transformations, point-set topology, and advanced calculus.

- Sales Rank: #2378839 in Books
- Published on: 2009-02-19
- Released on: 2009-02-19
- Original language: English
- Number of items: 1
- Dimensions: 8.10" h x .60" w x 5.50" l, .50 pounds
- Binding: Paperback
- 224 pages

Most helpful customer reviews

18 of 21 people found the following review helpful.
out-of-date; even worse, sometimes incorrect
By Malcolm
Auslander & MacKenzie's "Introduction to Differential Manifolds" was one of the first books on differential manifolds (the back cover actually claims it to be The first, but I believe Munkres' Elementary Differential Topology was earlier, and certainly Milnor's and Hu's published lectures notes were), so perhaps it is no surprise that it is out-of-date. But the terminology and definitions differ so significantly from modern ones, this book can actually harm a new graduate student by implanting false concepts that will then have to be unlearned.

There is a nice selection of topics: definitions of manifolds, diffeomorphisms, submanifolds, etc.; submanifolds of Euclidean space and projective varieties; Lie groups and algebras; principal and fibre bundles; multilinear (i.e., tensor) algebra; the Whitney embedding theorem; and foliations and the Frobenius theorem. Some of these are well presented, at an easy level for beginners - the sections on projective varieties, fibre bundles, and foliations in particular are not usually found (or, at least, this well explained) in introductory differential topology textbooks, so it would almost be worth reading this book for these chapters. And there are slightly unusual treatments of some things, such as the implicit function theorem and the differential of a function (defined as an equivalence class of functions).

However, most subjects are treated rather cursorily, often devoting the bulk of the chapter to bland formalism or basic definitions and not getting to anything actually interesting. A good example of this is the last chapter, on tensor products: 25 pages are used to develop the formal theory of tensor and exterior products, as one would encounter in an algebra book such as Lang, and then only on the last page is the exterior derivative introduced, with no time to then use differential forms for anything (e.g., no mention of integration). Even worse, the first pages of the book begins with a discussion of R^n that separates out the vector space and metrical properties, using different letters to denote R^n as a metric space (E^n) and as a vector space (V^n), and then continues this needless distinction throughout the book. The notion of "attaching" V^n to R^n is not found anywhere else that I've seen and seems to be one of those pedagogical approaches that never caught on and serves no purpose for modern readers.

Even the sections that are well written are very inadequate. The chapter on foliations doesn't actually use the term (or the definition of) foliations anywhere, nor does it tell you that it has in fact proved the Frobenius theorem. The chapter on Lie groups (and algebras) doesn't even mention any of the classical ones except the orthogonal groups and GL(n). The explanations of projective space and projective varieties are nice, but only scratch the surface of algebraic geometry. Vector bundles and Riemann metrics are defined and a few properties are demonstrated, but they are not used again elsewhere. There are brief treatments of flows and partitions of unity, but the latter in particular are hardly used when compared with most diff top books. There are relatively few graphs (about a dozen in the whole book) and the exercises are generally pretty easy - many of them are just filling in missing steps in the proofs.

But the worst feature of this book is the fact that some of the definitions of important concepts such as diffeomorphism and submanifold are different from current usage. In fact, they differ from even earlier works, such as Milnor's Differential Topology notes (in Collected Papers of John Milnor. Volume III: Differential Topology), as they are using the older definition for a submanifold from differential geometry, but mix in results from Milnor, without even realizing the discrepancies (cf. Munkres for a discussion of this issue). This is evidenced by the fact that diffeomorphism is actually defined 2 different ways, with the authors seemingly unaware that an injective immersion is not necessarily an embedding. Their "submanifold" also has the property that it may not share the same topology from the manifold of which it is a submanifold! In fact, on pp. 89-90 they construct a "submanifold" of the torus, via an injective immersion of the line (and a 2-page proof that rationals are dense in the reals), that has a different topology, whereas Kosinski (Differential Manifolds) on p. 27 uses the exact same example to show that this subset of the torus is NOT a submanifold! (To be fair, Bishop & Crittenden's "Geometry of Manifolds," from the same time period, also makes this "mistake," but they were at least writing a diff geom book.) A similar thing happens in the proof of the Whitney "embedding" theorem, where Milnor's proof is followed almost to the letter, with a few more details filled in, but one exercise that Milnor leaves for the reader has been omitted, so that instead of proving an embedding theorem, the authors only succeed in proving the existence of an injective immersion, which they mistakenly call a diffeomorphism. Then there are other differences in terminology, such as calling an immersion a regular function or defining a Lie group to be real-analytic (and then having to demonstrate this property explicitly).

There are only a few typos, but the print quality is so poor (it looks like it was made from a photograph of the old pages) that sometimes one mistakes one number or letter for another, since the text is so washed out.

In short, if you want to learn about differential manifolds, give this book a pass and buy instead Broecker & Jaenich's Introduction to Differential Topology, Lee's Introduction to Smooth Manifolds, Gauld's Differential

Topology: An Introduction, Guillemin & Pollack's Differential Topology, Barden & Thomas's An Introduction to Differential Manifolds, Hirsh's Differential Topology, or Milnor's Topology from the Differentiable Viewpoint. None of these books has quite the same emphasis, so you'll still need to learn Lie groups & algebras and projective varieties elsewhere, but at least you'll learn everything right the first time.

0 of 0 people found the following review helpful.
Valuable history. Dreary and old-fashioned, but useful.
By Alan U. Kennington
I'm grateful to Dover for republishing this differential geometry book because it has historic value. However, it is not suitable for the modern student to learn differential geometry.

Although the back cover says that it is "The first book to treat manifold theory at an introductory level", this doesn't sound very likely to me. The first edition publication date is 1963, which coincidentally is the same year as Guggenheimer and teh first volume of the Kobayashi/Nomizu book. Books about differentiable manifolds had been published for a hundred years already. Maybe what they mean is the style of "manifold theory" which uses fibre bundles, which were published by Steenrod in "The Topology of Fibre Bundles" in 1951.

The back cover also says that "this text surveys basic concepts in the modern approach to differential geometry". Well, I don't know how it can be both the first and also modern. The Auslander/MacKenzie style of presentation of fibre bundles in Chapter 9, for example, is very reminiscent of the Kobayashi/Nomizu book, Chapter 1, Section 5, Pages 50–62. In fact, the overall styles of notations and definitions in these two books are very similar indeed. Maybe both books drew on the same sources, or maybe one of them drew directly from the other. More likely they drew on the same sources.

The proofs of lemmas and theorems in this differentiable manifolds book are long and tiresome. However, it is good that some basic theorems have been presented here in all their tedious, plodding detail. There is a proof of the Whitney imbedding theorem on pages 106–116 (showing that intrinsic manifolds can be embedded in Cartesian space), and a proof that every differentiable manifold can be given a Riemannian metric on pages 94–105.

Even though this book is supposedly modern, there is no mention of connections on fibre bundles, although the chapter on fibre bundles (pages 158–185) is useful in showing how the subject was presented in the olden days before it became more and more divorced from reality over the decades. I would say that the Auslander/MacKenzie presentation of fibre bundles is far preferable to the Kobayashi/Nomizu presentation.

The final chapter 10 on multilinear algebra and tensors (pages 186–212) seems to be disconnected from the rest of the book. It uses the "characterization" method of definition of the tensor product of a pair of linear spaces, which is an approach typical of category theory, using the universal map concept. The rest of the treatment of tensors and alternating forms and wedge products is fairly standard and old-fashioned though. The end of the multilinear algebra chapter is the definition of the exterior derivative on a differentiable manifold, which seems to be the purpose of the final chapter 10. But nothing at all is done with this machinery.

There's a fair amount on Lie groups, exponential maps, integral curves, and so forth, but not much in the way of theorems comes out of this. It's mostly just defining things.

There's also an odd chapter 3 on projective algebraic varieties, which seems to be not very well connected to the rest of the book.

Overall, the book is quite reminiscent of the old differential geometry approach of 50 to 100 years earlier. It's useful to me because I'm interested in the history of differential geometry. But it is definitely not suitable for the modern student wanting to know the modern ways of doing things.

P.S. Maybe what they mean by "manifold theory" (on the back cover) is the use of an atlas of coordinate patches to cover a manifold. However, that was done by Thomas James Willmore in 1959 in "An Introduction to Differential Geometry", pages 151–154 and 193–195. Willmore defines a manifold with multiple charts in the modern fashion with the Hausdorff condition. In fact, the Willmore book is very much more modern and comprehensive overall than Auslander/MacKenzie although he published 4 years earlier, but Willmore does not mention fibre bundles. So maybe it's the use of fibre bundles which the back cover of the book is referring to as "manifold theory".

4 of 7 people found the following review helpful.
Saved me in grad school
By KB
When I found this book in graduate school, I cried out O frabjous day! Callooh! Callay! There were a number of ideas that I just couldn't seem to grasp. Everyone else kept using these words, and they just kept slipping out of my head every time I thought I understood them. Then I found this little gem and I felt like someone had turned on the lights. I was astonished to see that it went out of print. When I saw that Dover reprinted it, I bought a new copy. After reading the other review, I feel like a dinosaur. But I did go to graduate school a long long time ago...

See all 3 customer reviews...

INTRODUCTION TO DIFFERENTIABLE MANIFOLDS (DOVER BOOKS ON MATHEMATICS) BY LOUIS AUSLANDER, ROBERT E. MACKENZIE PDF

Obtain the link to download this **Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie** as well as start downloading and install. You can want the download soft data of the book Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie by going through various other tasks. And that's all done. Currently, your count on review a book is not consistently taking as well as carrying the book Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie all over you go. You can conserve the soft data in your gizmo that will never be far as well as review it as you like. It resembles checking out story tale from your device after that. Now, begin to like reading Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie and obtain your brand-new life!

By downloading this soft file e-book **Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie** in the online web link download, you are in the first action right to do. This website truly supplies you ease of the best ways to get the very best book, from finest seller to the brand-new released book. You can find a lot more e-books in this website by visiting every web link that we offer. Among the collections, Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie is among the most effective collections to market. So, the very first you obtain it, the first you will get all good about this publication Introduction To Differentiable Manifolds (Dover Books On Mathematics) By Louis Auslander, Robert E. MacKenzie