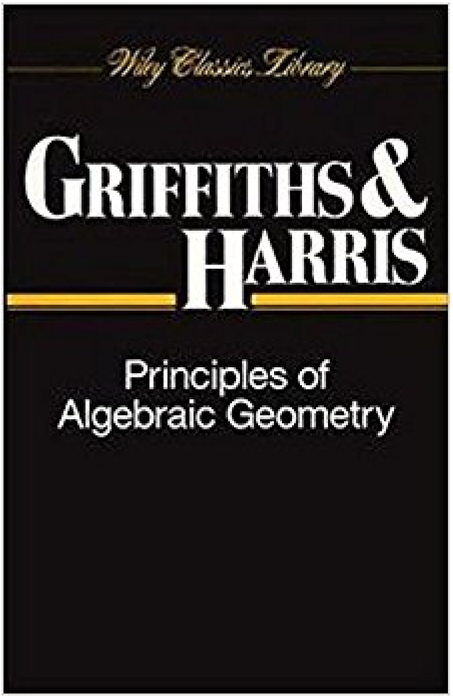
Principles Of Algebraic Geometry



Synopsis

A comprehensive, self-contained treatment presenting general results of the theory. Establishes a geometric intuition and a working facility with specific geometric practices. Emphasizes applications through the study of interesting examples and the development of computational tools. Coverage ranges from analytic to geometric. Treats basic techniques and results of complex manifold theory, focusing on results applicable to projective varieties, and includes discussion of the theory of Riemann surfaces and algebraic curves, algebraic surfaces and the quadric line complex as well as special topics in complex manifolds.

Book Information

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Customer Reviews

Just wanted to add the following:1) The mathematics in this book is some of the most beautiful stuff I’ve ever seen. I don’t in any way mean to deny the beauty of the Spec of a Ring, but - even if you have always planned on working in Grothendeick’s world - I think this is worth reading for any algebraic geometer (regardless of what field you’re living over).With their bare hands, Griffiths and Harris prove some of the greatest results in maths. I learned more reading Chapter O than I did taking the entire collection of "first- year" grad courses (algebra & analysis). The material was more interesting, and it tied together in a way that had you remember all of it. From elliptic operator theory to the representation of sl(2), in the same chapter!2) For string theorists trying to learn some of the math lingo, this is a necessary first step, though I would also highly recommend Candelas’s notes, and Aspinwall’s great paper, "K3 Surfaces and String Duality". Also, Brian Greene’s notes are very nice. T. Hubsch’s book is also great for the big picture, but I was disappointed by several non-trivial errors in his explanations of math concepts. I recommend all of the above to mathematicians as well - I am a mathematician, and I learned a lot of valuable side material from these physics sources. Especially in trying to understand mirror symmetry. Of course, Cox and Katz’s newish book is also excellent for this.3) My favorite parts: chap 1: divisors and line bundles, the exp sheaf sequence. read this, and then skip to the same picture for line bundles on a torus. the same type of bouncing back and forth works for getting the analogs between Reimann surfaces and complex surfaces...actually, every page of this huge book has something valuable.

Once thought to be highly esoteric and useless by those interested in applications, algebraic geometry has literally taken the world by storm. Indeed, coding theory, cryptography, steganography, computer graphics, control theory, and artificial intelligence are just a few of the areas that are now making heavy use of algebraic geometry. This book would probably be the most useful one for those interested in applications, for it is an overview of algebraic geometry from the complex analytic point of view, and complex analysis is a subject that most engineers and scientists have had to learn at some point in their careers. But one must not think that this book is entirely concrete in its content. There are many places where the authors discuss concepts that are very abstract, particularly the discussion of sheaf theory, and this might make its reading difficult. The complex analytic point of view however is the best way of learning the material from a practical point of view, and mastery of this book will pave the way for indulging oneself in its many applications. Algebraic geometry is an exciting subject, but one must master some background material before beginning a study of it. This is done in the initial part of the book (Part 0), wherein the reader will find an overview of harmonic analysis (potential theory) and Kahler geometry in the context of compact complex manifolds. Readers first encountering Kahler geometry should just view it as a generalization of Euclidean geometry in a complex setting. Indeed, the so-called Kahler condition is nothing other than an approximation of the Euclidean metric to order 2 at each point. The authors choose to introduce algebraic varieties in a projective space setting in chapter 1, i.e.

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