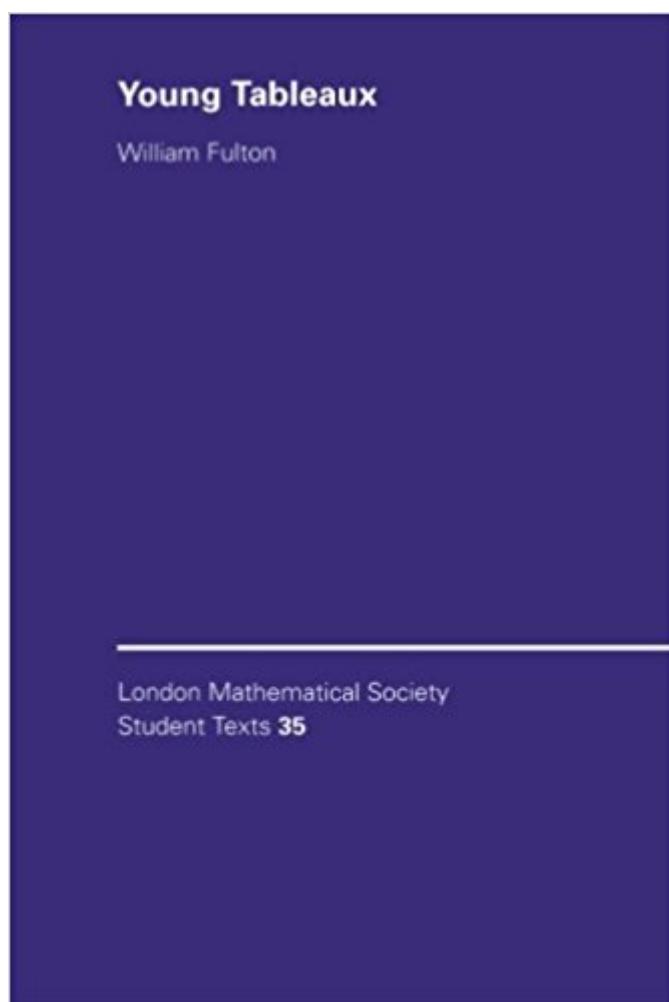


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# Young Tableaux: With Applications To Representation Theory And Geometry (London Mathematical Society Student Texts)



## Synopsis

This book develops the combinatorics of Young tableaux and shows them in action in the algebra of symmetric functions, representations of the symmetric and general linear groups, and the geometry of flag varieties. The first part of the book is a self-contained presentation of the basic combinatorics of Young tableaux, including the remarkable constructions of "bumping" and "sliding", and several interesting correspondences. In Part II the author uses these results to study representations with geometry on Grassmannians and flag manifolds, including their Schubert subvarieties, and the related Schubert polynomials. Much of this material has never before appeared in book form. There are numerous exercises throughout, with hints and answers provided. Researchers in representation theory and algebraic geometry as well as in combinatorics will find this book interesting and useful, while students will find the intuitive presentation easy to follow.

## Book Information

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## Customer Reviews

The aim of this book is to develop the combinatorics of Young tableaux and to show them in action in the algebra of symmetric functions, representations of the symmetric and general linear groups, and the geometry of flag varieties.

Young tableaux are fillings of the boxes of diagrams that correspond to partitions with positive integers, that are strictly increasing down columns and weakly increasing along rows. The aim of

this book is to develop the combinatorics of Young tableaux and to show them in action in the algebra of symmetric functions, the representations of the symmetric and general linear groups, and the geometry of flag varieties. Many of these applications have not been available in book form.

With his usual lucidity, Fulton brings together the surprisingly wide area of mathematics concerned with Young tableaux. These are combinatorial patterns which index basis vectors of group representations (either of the symmetric group or the general linear group). These vectors can be seen as Plucker coordinate functions on non-linear representations, namely homogeneous spaces (Grassmannians and flag varieties). Thus, Young tableaux form an invaluable tool to examine these representations and varieties in concrete detail. Fulton also gives a good exposition of the combinatorial operations on tableaux which reflect the crystal basis structure from quantum  $GL(n)$ , though Fulton does not explicitly discuss quantum groups. Other good expositions of these topics, from a more algebraic and combinatorial point of view, are Sagan's newly revised "The Symmetric Group", and Stanley's "Enumerative Combinatorics", Vol 2.

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