

# Preface

This book contains an exposition of several results related with direct and converse theorems in the theory of approximation by algebraic polynomials in a finite interval. In addition, we include some facts concerning trigonometric approximation that are necessary for motivation and comparisons. The selection of papers that we reference and discuss document some trends in polynomial approximation from the 1950s to the present day.

The book does not pretend to be a text for graduate students. We only want to ease the task of understanding the evolution of ideas and to help people in finding the correct references for a specific result. An important feature of the book is to put together some different known solutions to problems in algebraic approximation that are not collected in text books. This explains the large number of references.

Almost all of the material appears in historical order, but the concepts are separated into groups in order to present a fuller picture of the state of the art in a specific problem.

Several topics related with algebraic approximation are not included here. For instance, we do not discuss approximation with constraints, because that would double the length of the book. On the other hand, we do present a few facts concerning approximation by positive linear operators.

I hope that this survey will be helpful to students and researchers interested in approximation by algebraic polynomials. Any suggestions that would help to improve these notes would be welcomed by the author.

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Algebraic Approximation: A Guide to Past and Current  
Solutions

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2012, VII, 205 p. 1 illus. in color.,

ISBN: 978-3-0348-0194-2

A product of Birkhäuser Basel