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## Preface

At the time we write this book there are several excellent references available which discuss various aspects of modular invariant theory from various points of view: Benson [6]; Derksen and Kemper [26]; Neusel [85]; Neusel and Smith [86]; and Smith [103]. In this book, we concentrate our attention on the modular invariant theory of finite groups. We have included various techniques for determining the structure of and generators for modular rings of invariants, while attempting to avoid too much overlap with the existing literature. An important goal has been to illustrate many topics with detailed examples. We have contrasted the differences between the modular and non-modular cases, and provided instances of our guiding philosophies and analogies. We have included a quick survey of the elements of algebraic geometry and commutative algebra as they apply to invariant theory. Readers who are familiar with these topics may safely skip this chapter.

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