

FOREWORD

The subject of combinatorics is so vast that the author of a textbook faces a difficult decision as to what topics to include. There is no more-or-less canonical corpus as in such other subjects as number theory and complex variable theory. Miklós Bóna has succeeded admirably in blending classic results that would be on anyone's list for inclusion in a textbook, a sprinkling of more advanced topics that are essential for further study of combinatorics, and a taste of recent work bringing the reader to the frontiers of current research. All three items are conveyed in an engaging style, with many interesting examples and exercises. A worthy feature of the book is the many exercises that come with complete solutions. There are also numerous exercises without solutions that can be assigned for homework.

Some relatively advanced topics covered by Bóna include permutations with restricted cycle structure, the Matrix-Tree theorem, Ramsey theory (going well beyond the classical Ramsey's theorem for graphs), the probabilistic method, and the Möbius function of a partially ordered set. Any of these topics could be a springboard for a subsequent course or reading project which will further convince the student of the extraordinary richness, variety, depth, and applicability of combinatorics. The most unusual topic covered by Bóna is pattern avoidance in permutations and the connection with stack sortable permutations. This is a relatively recent research area in which most of the work has been entirely elementary. An undergraduate student eager to do some original research has a good chance of making a worthwhile contribution in the area of pattern avoidance.

I only wish that when I was a student beginning to learn combinatorics there was a textbook available as attractive as Bóna's. Students today are fortunate to be able to sample the treasures available herein.

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