

PHYSICS IN MOLECULAR BIOLOGY

Tools developed by statistical physicists are of increasing importance in the analysis of complex biological systems. *Physics in Molecular Biology* discusses how physics can be used in modeling life. It begins by summarizing important biological concepts, emphasizing how they differ from the systems normally studied in physics. A variety of subjects, ranging from the properties of single molecules to the dynamics of macro-evolution, are studied in terms of simple mathematical models. The main focus of the book is on genes and proteins and how they build interactive systems. The discussion develops from simple to complex phenomena, and from small-scale to large-scale interactions.

This book will inspire advanced undergraduates and graduates of physics to approach biological subjects from a physicist's point of view. It requires no background knowledge of biology, but a familiarity with basic concepts from physics, such as forces, energy, and entropy is necessary.

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Preface

This book was initiated as lecture notes to a course in biological physics at Copenhagen University in 1998–1999. In this connection, Chapters 1–5 were developed as a collaboration between Kim Sneppen and Giovanni Zocchi. Later chapters were developed by Kim Sneppen in connection to courses taught at the Norwegian University of Science and Technology at Trondheim (2001) and at Nordita and the Niels Bohr Institute in 2002 and 2003.

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